

Contributions to the knowledge of *Ceramius* Latreille, *Celonites* Latreille, *Jugurtia* Saussure and *Masarina* Richards (Hymenoptera: Vespidae: Masarinae) in South Africa

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Abstract.—Descriptions are given of the following new species of Masarinae from South Africa: *Ceramius brevitarsis* (female and male), *Celonites gariensis* (female and male); *Celonites tumidiscutellatus* (female and male); *Celonites lobeliae* (female and male); *Jugurtia tigrina* (female and male); *Jugurtia codoni* (female and male); *Jugurtia koeroegabensis* (female and male); *Masarina ceres* (male); *Masarina mixtoides* (female and male); *Masarina namaqua* (female and male); *Masarina parvula* (female and male); *Masarina peliostomi* (female and male); and *Masarina tylecodoni* (female and male). Also described are the previously unknown male of *Ceramius peringueyi* Brauns, female of *Jugurtia duplicata* Richards and male of *Masarina strucki* Gess. *Jugurtia polita* Richards, 1962 is synonymized with *Jugurtia eburnea* (Turner, 1935) new status.

INTRODUCTION

The present contribution names and describes species of *Ceramius* Latreille, *Celonites* Latreille, *Jugurtia* Saussure and *Masarina* Richards, in order that observations on flower visiting and, for two of the species, nesting may be presented in a companion paper (Gess, S. K. et al. 1997). Names and descriptions are furthermore given for three species previously (Gess, S. K. 1996) identified only by letters of the alphabet.

Comparison of the newly described *Jugurtia tigrina* with two similarly coloured species has revealed that these two have been persistently confused with each other. This confusion is discussed in full and resolved. A key to separate the three species is given, as are available collecting data to elucidate their distributions.

The six new species of *Masarina*, *M. ceres*, *M. mixtoides*, *M. namaqua*, *M. parvula*, *M. peliostomi*, and *M. tylecodoni* raise the number of species assignable to the genus from four to ten. The listing by van der Vecht and Carpenter (1990) of *Masarina* as a junior subjective synonym of *Jugurtia* is reassessed and it is concluded that *Masar-*

ina should retain generic status. A key to the presently known species of *Masarina* is given.

The opportunity is taken to complete the descriptions of *Jugurtia duplicata* Richards, hitherto known from the male, of *Masarina strucki* Gess, hitherto known from the female, and of *Ceramius peringueyi* Brauns, hitherto known from the female. Collecting data for the above three poorly known species are given.

A supplement to the previously published key to the southern African (in effect Afrotropical) species of *Ceramius* (Gess 1973) is provided to include the presently described species, *C. brevitarsis*, the only additional species discovered to date, and male of *C. peringueyi*.

Acronyms for institutions in which material is housed are: AMG = Albany Museum, Grahamstown, South Africa; NCP = National Collection of Insects, Pretoria, South Africa; NHML = National History Museum, London, United Kingdom; SAM = South African Museum, Cape Town, South Africa; TMP = Transvaal Museum, Pretoria, South Africa.

SPECIES DESCRIPTIONS

Ceramius Latreille, 1810*Ceramius brevitarsis* Gess, sp. nov.

Female.—Black. The following are lemon-yellow: spot on proximal two-fifths of mandible; hexagonal marking covering almost entire clypeal disc; large transverse rectangular supraclypeal marking on lower half of frons between antennal sockets; narrow band margining inner orbits from clypeo-frontal suture to level of bottom of anterior ocellus; elongate spot on top of tempora; diffuse streak on scape; almost entire pronotum (excepting black band margining ventral margin and black pronotal lobe); longitudinal streaks laterally and medially on posterior third of mesoscutum; upper part of axilla; large spot on prepectus; posterior two thirds of scutellar disc (extending onto sides and posterior declivous face of scutellum); transverse marking on middle of metanotum; irregularly shaped marking on propodeal angle; tergum I (except for black anterior declivous face); wide, laterally expanded, transverse posterior bands on terga II–IV; entire tergum V; tergum VI (except for narrow black margin); markings laterally on sternum II; most of sterna III–V; variously developed spot on underside of coxa of all legs; distal two thirds of outer aspect of front femur, entire outer aspect of middle femur and isolated spot on outer aspect of hind femur; most of outer aspect of tibia of all legs and most of front basitarsus. The following are reddish: mandible (other than yellow part indicated above and black apical teeth); narrow ventral margin of clypeus; apex of labrum; entire antenna (excluding yellow streak on scape); most of tegula; extreme sides of terga II and III; a basi-medial spot on sternum II; diffuse posterior bands on sterna II–IV; legs other than yellow parts listed above. Wings fuscous; costa and stigma of front wing and all veins of hind wing reddish brown, other veins of front wing dark

brown; thickening at junction of Rs and M black.

Melanistic specimens differ most strongly in the following respects: markings on mandible and scape absent (or, if present, reddish); marking on clypeal disc somewhat narrower and barrel-shaped; supraclypeal marking absent; band margining inner orbits reduced in width and height; spot on tempora reduced; yellow on pronotum reduced postero-laterally to a narrow dorsal band and a wider but shorter lower one; markings on mesonotum and metanotum absent and those on axilla, scutellum, prepectus and propodeum reduced; yellow bands on terga I–IV reduced in width and that of tergum I not attaining hind margin.

Length 12.5–13.3 mm (average of 7: 12.7 mm); length of front wing 8.3–9.0 mm (average of 7: 8.6 mm); hamuli 17–19.

Head, thorax, propodeum and tergum I with long erect pilosity; hairs on clypeus in region below antennal sockets, on frons (in particular), vertex, pronotum and anterior portion of mesoscutum coarse and golden, those on other parts much finer and silvery-white.

Head noticeably wider ($1.15\times$) than long. Eyes seen in frontal view strongly convex; lateral margin of eye and lateral margin of closed mandible (apex touching that of opposing mandible) forming two distinct convex curves. Clypeus $1.5\times$ longer than wide at ventral margin, truncate with definite but narrowly rounded angles separating ventral and lateral margins; disc finely longitudinally striate and shallowly depressed medially. Frons and vertex closely and coarsely punctured, POL (distance between posterior ocelli):OOL (distance between eye and a posterior ocellus) = $1:1.5$ (average value for 7 specimens).

Thorax with pronotum and mesoscutum similarly punctured to frons and vertex but with mesopleura and scutellum more finely punctured. Mesoscutum with prescutal furrows well marked posteriorly

and parapsidal furrows distinct. Scutellum anteriorly steeply raised above level of mesoscutum; disc weakly carinate medially and laterally and with its surface between these carinae slightly depressed.

Propodeum with sparse shallow punctures and microsculptured interspaces, laterally with pronounced sharply pointed processes.

Gaster shiny, uniformly microsculptured; tergum I transverse, subapically $3 \times$ wider than long, barely noticeably constricted just anterior to posterior margin; tergum II anteriorly narrowing and posteriorly $1.3 \times$ wider than I; terga II–VI together progressively and smoothly narrowing posteriorly and with tergum VI pointed but narrowly rounded.

Front tarsus noticeably short and wide; middle tibia with 2 apical spurs.

Male.—The following are lemon-yellow: mandible (other than extreme base and apical teeth); hexagonal marking covering almost entire clypeal disc; lateral angles of clypeal wings adjacent to mandibular articulation; irregularly shaped and variously developed supraclypeal markings on lower half of frons; narrow band margining inner orbits from clypeo-frontal suture to level of about one ocellar diameter below anterior ocellus; elongate spot on top of tempora; scape (except for black, dorsal longitudinal streak); sometimes upper surface of last flagellomere; pronotum (except black band margining ventral and postero-lateral margins); upper part of axilla; spot on prepectus; posterior half or less of scutellar disc; propodeal angles (sometimes only spine-like processes); subapical transverse band widened laterally and frequently interrupted medially on tergum I; wide, laterally expanded, transverse posterior bands on terga II–VI; basi-lateral spots on tergum VII; irregularly shaped and variously developed markings on discs of sterna II–VII; most of underside of front coxa and the entire underside of middle and hind coxae; mesosternal projections adjacent to coxae; process of front

trochanter; small spot on middle and hind trochanters; entire outer aspect and underside of front and middle femora; basal and apical spots on outer aspect of hind femur; longitudinal streak on basal tarsomere of all legs. The following are reddish: flagellomeres (other than occasionally last flagellomere as noted above and dorsal infuscation of other flagellomeres); most of tegula; extreme sides of terga and parts of sterna; legs other than yellow parts listed above and strongly contrasting black last tarsomeres, claws and pulvilli of middle and hind legs. Wings similar to those of female but less heavily infuscated.

Length 12.0–12.7 mm (average of 7: 12.4 mm); length of front wing 8.2–8.5 mm (average of 7: 8.3 mm); hamuli 14–18.

In general facies similar to female, the chief differences being as follow. Head width relative to head length even greater ($1.3 \times$); disc of clypeus $1.8 \times$ longer than wide at ventral margin; POL:OOL = 1:1.4 (average value for 7 specimens). All flagellomeres longer; VI–IX each with a low, shiny, longitudinal swelling beneath; ultimate flagellomere a little longer than penultimate, a little flattened and weakly concave beneath. Tergum I noticeably constricted dorsally and dorso-laterally just anterior to posterior margin. Tergum VII subtruncate with hind margin widely rounded laterally. Sterna III, VII and VIII with processes; process of III small, steeply raised above middle of disc, with its transverse distal edge about one sixth of the width of the sternum at its midlength; process of VII postero-ventrally directed and spatulate in ventral view; basal process of VIII poorly developed. Sternum VIII with disc posterior to basal process medially deeply depressed, shiny, and on each side produced into a prominent postero-ventrally directed, bluntly pointed, pilose projection. Trochanter of front leg produced into an anteriorly directed, apically rounded process. Front femur with surface depressed in proximal half.

Material examined.—Holotype: female,

Cape Province: Namaqualand, Richtersveld N[ational] Park, bet[ween] hills (28.10S, 17.02E), NW Koeroegabvlakte, 14.ix.1996 (F.W., S.K. and R.W. Gess) (at water) [AMG]. Paratypes (51 females, 7 males): same locality, date and collectors (50 females, 6 males at water; 1 female, 1 male on cream flower[s] of *Zygophyllum prismatocarpum* E. Mey. ex Sond., Zygophyllaceae) [AMG].

All specimens are free of mites.

Discussion.—*Ceramius brevitarsis* is most closely allied to *cerceriformis* Saussure and *peringueyi* Brauns. In both sexes it differs from these species in its smaller body size (marked with respect to *cerceriformis*), in the greater width relative to length of the head resulting from its more strongly convex eyes, and in the form of the clypeus—truncate with definite angles separating the ventral and lateral margins rather than (particularly in the female) rounded and without definite angles. It differs markedly from *peringueyi* in coloration. The female is further distinguished by the shortness of the tarsus of the front legs. The male is in addition distinguishable in having the last flagellomere only minimally modified, in the different form of the sternal prominences and of the disc of sternum VIII.

Etymology.—The name *brevitarsis* serves to draw attention to the short tarsus of the front leg of the female.

Ceramius peringueyi Brauns

Ceramius peringueyi Brauns, 1913: 194, female. Holotype: female, South Africa: Stellenbosch (TMP).—Richards, 1962: 100 (female only, male = *richardsi* Gess, 1965); Gess, 1965: 220.

Male.—Black. The following are creamy-white: broad streak on mandible, clypeus except lateral wings, inner orbit from near mandibular articulation to bottom of ocular sinus, small spot on top of tempora, streak on underside of scape, pronotal band wide anteriorly where extended onto sides but narrow laterally as far as

posterior angles of pronotum whence a well marked streak extends ventrally onto spiracular lobes, small postero-lateral streak on each side of mesonotum, large spot on dorsal part of axilla, transverse streaks on posterior declivous portion of scutellum and median portion of metanotum, anterior margin of tegula, minute to small spots at top of mesopleura, propodeal spines dorsally, sometimes small diffuse median and lateral spots posteriorly on tergum I, transverse median streaks and variously sized lateral spots posteriorly on terga II–V (markings sometimes reduced or conversely narrowly connected along hind margin of terga IV and V), sometimes single median spot posteriorly on tergum VI, projection on sternum III, streak on front tibia dorsally, spots on underside of middle and hind coxae, small spots on underside of trochanters and sometimes base and apex of femora of front and middle legs and spots on knees of all legs. The following are reddish: underside of flagellomeres I–IX and whole of X, transverse band on declivous anterior face of pronotum and large area on sides of same, terga I and III predominantly (tergum III sometimes with black area), sterna II and III and isolated diffuse spots on sternum IV, legs (excluding yellow markings and black fifth tarsomeres of middle and hind legs). Wings fuscous, venation dark brown.

Length 13.0–15.2 mm (average of 5: 14.2 mm); length of front wing 8.8–9.7 mm (average of 5: 9.2 mm); hamuli 15–19.

In general facies and coloration very similar to the female, the chief differences being as follow. Disc of clypeus narrower at base and proportionately longer. Ultimate flagellomere enlarged, hook-like, folding back against flattened ventral surfaces of flagellomeres VII–IX, similar in general plan to that of *C. cerceriformis*. Sterna III, VII and VIII with pronounced processes and IV with basal quarter markedly transversely raised and posteriorly falling abruptly to disc. Processes similar

to those of *C. cerceriformis* but that on sternum III more gracile, its anterior edge transversely much narrower, sublamellate and sharply bipointed, seen in side view raised higher above the convex posterior part and with anterior face almost straight, subvertical, and with apical tubercles ventrally directed. Trochanter of front leg produced into a process similar to that of *C. cerceriformis* but not as wide and thick.

The front femur, as in the female, is unmodified and is therefore different from that of the male of *C. cerceriformis* which, to a variable degree, has its outwardly facing surface depressed in the proximal half.

Material examined.—Cape Province: 10–20 km E Lambert's Bay (32.08S, 18.28E), 3.x.1990 (*C. Eardley*), 1 male [NCP]; 5 km E of Vredendal on road to Vanrhynsdorp, 30.ix.1985, 14 females (all on flowers of *Psilocaulon acutisepalum* (Berger) N.E.Br., Aizoaceae: Mesembryanthema); Graafwater (32.09S, 18.33E), 14.x.1994, 4 females (all on flowers of *P. acutisepalum*); Klipfontein (32.00S, 18.31E), 14.x.1994, 4 females, 1 male (all on pink flowers of *Psilocaulon* sp.) (all F. W. and S. K. Gess) [all AMG]; Graafwater dist., Heerenlogement (31.58S, 18.33E), 6.x.1995, 5 males (all on pink flowers of *P. cf. subnodosum* (Berger)

N.E.Br.); same locality, 8.x.1995, 5 females, 10 males (all on pink flowers of *Psilocaulon* spp.); Graafwater/Ratelfontein (32.09/02S, 18.36/35E), 7.x.1995, 1 male (on pink flowers of *P. acutisepalum*); Ratelfontein/Oloff Berghfontein (32.02S, 18.35/31E), 7.x.1995, 1 female (ex nest); same locality, 8.x.1995, 2 males (both on pink flowers of *P. acutisepalum*) (all F. W., S. K. and R. W. Gess) [all AMG].

Discussion.—*Ceramius peringueyi* was described from a single female, collected by L. Péringuey, of which the provenance was given as the vicinity of Cape Town, with the suggestion that it was probably from the Peninsula (Brauns 1913). The label on the specimen, however, gives the collection locality as Stellenbosch (Richards 1962 and Gess 1965). The species was subsequently recorded from Het Kruis and Paleisheuvel (Gess 1965). Apart from the cited type locality, attended by uncertainty, all collecting localities suggest a limited distribution centred upon the sandveld west of the Olifants River.

The male collected in 1990 carries 14 mites, situated mostly on the metapleura, and two of the females collected in 1995 bear a single mite each. The remainder of the total of 19 males and 33 females examined at different times by the author are without mites.

SUPPLEMENT TO THE PREVIOUSLY PUBLISHED KEY TO SOUTHERN AFRICAN SPECIES OF
CERAMIUS LATREILLE (GESS 1973)

- | | | |
|-----|--|-----|
| 16 | Males | 16a |
| – | Females | 17 |
| 16a | Head noticeably wider (1.3×) than long. Last flagellomere minimally modified, hardly longer than that immediately preceding it, not hook-like, gradually narrowed towards rounded apex. Body black and yellow, length less than 13 mm ... <i>brevitarsis</i> Gess sp. nov. | |
| – | Head at most only minimally wider (less than 1.1×) than long. Last flagellomere much modified, as long or longer than preceding two together, broadened on inner side beyond base and then narrowed again | 16b |
| 16b | Body predominantly black and reddish with pale yellow markings, length 13.0–15.2 mm. Prominence on sternum III when seen in profile with anterior face almost straight, subvertical, and with apical tubercles ventrally directed. Front femur unmodified | |
| – | Body predominantly black and yellow, length 14.5–17.2 mm. Prominence on sternum III when seen in profile with anterior face posteriorly curved and with apical tubercles | |

..... *peringueyi* Richards

- postero-ventrally directed. Front femur to variable degree with outwardly facing surface depressed proximally *cerceriformis* Saussure
- 17 Head noticeably wider (1.15×) than long. Eyes seen in frontal view strongly convex; lateral margin of eye and lateral margin of closed mandible [apex touching that of opposing mandible] forming two distinct convex curves. Clypeus truncate with definite angles separating ventral and lateral margins. Body black and yellow, length 12.5–13.3 mm..... *brevitarsis* Gess sp. nov.
- Head as wide as long or at most only minimally wider than long. Eyes seen in frontal view only moderately convex; lateral margin of eye and lateral margin of closed mandible [apex touching that of opposing mandible] forming a smooth or almost smooth line. Clypeus rounded and without definite angles separating ventral and lateral margins 17a
- 17a Body predominantly black and reddish with pale yellow markings, length 13.6–14.5 mm. Pronotum predominantly reddish. Prepectus always immaculate. Metasoma with terga I, II and frequently III reddish; tergum I either immaculate or with pale yellow medial and lateral spots posteriorly, terga II–V (or fewer) with narrow pale yellow transverse posterior bands not anteriorly expanded laterally..... *peringueyi* Richards
- Body predominantly black and yellow, length 16.7–17.8 mm. Pronotum predominantly yellow. Prepectus always with a large yellow spot. If melanistic and with pronotum and tergum I (and sometimes II) reddish then terga II–V with yellow transverse posterior bands much anteriorly expanded laterally..... *cerceriformis* Saussure

Celonites Latreille, 1802

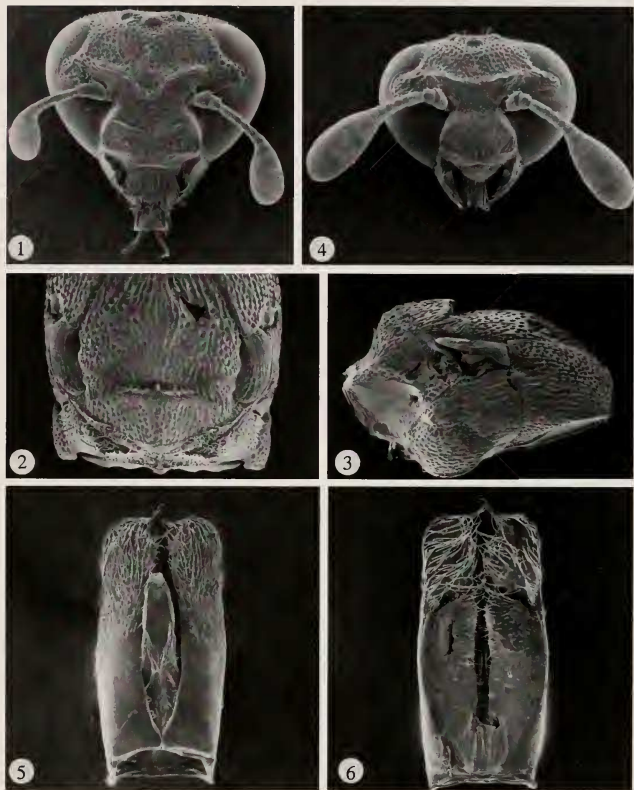
Celonites gariepensis Gess, sp. nov.

Female.—(Figs. 1–3). Black. The following are yellowish-white: occasionally a small irregularly-shaped spot medially in top third of clypeus, small (occasionally minute) spot on either side of frons close to margin of upper eye (that is, above ocular sinus), continuous medially widened band on posterior margin of pronotum (sometimes interrupted laterally, or interrupted and reddish brown rather than yellowish-white, or occasionally almost totally extinguished), spot of variable size (occasionally totally extinguished) on humeral angle, a spot of variable size (sometimes totally extinguished) on mesopleuron immediately below tegula, outer two-thirds or less of propodeal lamellae (if coloured area much reduced then reddish-brown rather than yellowish-white), postero-lateral markings on terga I–IV and postero-medial markings on terga V and VI (all may be reduced or totally extinguished). The following are reddish-brown: apical half of mandible, posterior margin of pronotum (if coloured band reduced, inter-

rupted and not yellowish-white), tegula, costal margin of front wing at its base, outer margin of propodeal lamellae (if coloured area much reduced and not yellowish-white), occasionally the visible median part of the metanotum, transverse bands (incorporating within them the yellowish-white markings) on posterior half of terga I–V (colour progressively darker towards end of metasoma, tergum VI dark brown; all transverse bands but that on tergum I extinguished in some specimens), distal ends of femora and to a variable extent tibiae and tarsi of all legs. Wings infuscated.

Length 6.9–7.3 mm (average of 4: 7.0 mm); length of front wing 4.9–5.3 mm (average of 4: 5.1 mm); hamuli 8. Length of extended tongue 5.6–5.8 mm (average of 2: 5.7 mm); tongue length: body length = 0.81.

Head (Fig. 1). Clypeus and frons shiny, coarsely rugoso-punctate; vertex dull, less coarsely sculptured. Clypeus with wide, shallow M-shaped carina, on each side (where strong) originating from near mandibular articulation and rising in outwardly directed arc to angle a little below and



Figs. 1-6. *Celonites gariensis*. 1, Frontal view of head of female ($\times 20$). 2, Dorsal view of posterior two-thirds of mesosoma of female ($\times 20$). 3, Lateral view of right side of mesosoma of female ($\times 20$). 4, Frontal view of head of male ($\times 20$). 5, Dorsal view of genitalia of male ($\times 50$). 6, Ventral view of genitalia of male ($\times 50$).

medial to antennal socket (where most pronounced), thence on each side directed medially and ventrally (where almost extinguished) to meet in obtuse angle or gentle curve. Frons above antennae with shallow, V-shaped carina, pronounced other than at ends and at medial angle, arising laterally opposite but outside middle of ocular sinuses and meeting at widely obtuse angle at level of upper margin of antennal sockets.

Thorax (Figs. 2 and 3). Upper surface of pronotum, mesoscutum, scutellum, tegula and mesopleuron more or less longitudinally rugoso-punctate; mesoscutum in posterior half markedly depressed on either side of midline; scutellum anteriorly very steeply raised above level of adjacent depressed mesoscutum and triangularly forwardly produced to almost overhang the latter. Propodeal lamella of each side wide, obliquely truncate distally, with outer edge gently convex, separated from median part of propodeum by narrow parallel-sided subtransverse slit the inner end of which is not enlarged; lateral projection of ventral margin of each side of the median part of the propodeum with its hind edge directed anteriorly and its apex acute.

Gastral tergum I shiny, with dense punctures of moderate size; remaining terga with sides and extreme base similarly punctured but less shiny and rest of each tergum matt with much finer punctures separated by microsculptured interspaces.

Male.—(Figs. 4–6). Black. Coloration similar to that of female. On the head the following are yellowish-white: usually a diffuse spot on disc of labrum, variably sized (but larger than in female) irregularly-shaped spot on clypeus, usually a transverse streak in each ocular sinus, sometimes small spot on frontal carina above each antennal socket. Flagellomeres II–V sometimes reddish-brown and contrasting with black of rest of antenna.

Length 6.5–7.0 mm (average of 3: 6.7 mm); length of front wing 4.4–5.1 mm (av-

erage of 4: 4.6 mm); hamuli 7–8. Length of extended tongue 5.0 mm (only one measured); tongue length: body length = 0.77.

Structure much like that of female differing most noticeably with respect to the following: antennal club both longer and wider and with three sensory depressions beneath; clypeal carina almost obliterated medially; frontal carina entire but less developed, especially medially; scutellum though steeply raised not antero-medially forwardly produced; gastral terga more uniformly punctured, with postero-lateral angles more strongly projecting; tergum VII compared to tergum VI of female with posterior margin of median part a much flatter curve.

Genitalia (Figs. 5 and 6).

Material examined.—Holotype: female, Cape Province: Namaqualand, Richtersveld National Park, Koeroegabvlakte (28.11S, 17.03E), 17–21 and 24.ix.1995 (F. W., S. K. and R. W. Gess) (in deep violet flowers of *Peliostomum* sp., Scrophulariaceae) [AMG]. Paratypes (38 females, 12 males): Cape Province: Namaqualand, Richtersveld National Park, Koeroegabvlakte (28.11S, 17.03E), 17–21 and 24.ix.1995 (F. W., S. K. and R. W. Gess), 32 females, 3 males (all in deep violet flowers of *Peliostomum* sp.), 1 female, 1 male (both in purple-violet flowers of *Aptosimum spinescens* (Thunb.) Weber, Scrophulariaceae); same locality, 6.ix.1996 (F. W., S. K. and R. W. Gess), 1 female, 7 males (female and all but 1 male on ground near flowering *Peliostomum* sp.); Namaqualand, Richtersveld National Park, Paradise Kloof (28.19S, 17.01E), 22.ix.1995 (F. W., S. K. and R. W. Gess), 1 female (associated with nest); Namaqualand, Richtersveld National Park, 1.5 km from Helskloof gate (28.18S, 16.57E), 8 and 9.ix.1996 (F. W., S. K. and R. W. Gess) 3 females, 1 male (all on ground near *Aptosimum spinescens*) [all AMG].

Discussion.—*Celonites gariepensis* falls into the group of southern African species in which the propodeal lamella is separat-

ed from the median part by a more or less spiral slit that usually ends in a circular emargination, with the projection of the median part, bordering the slit, very markedly projecting into it. Within this group it is closest to *clypeatus* Brauns and *andrei* Brauns, sharing with them a carina not only on the frons but also on the clypeus. It is distinguishable from both, however, by a very different colour pattern, the possession of whitish-yellow markings being particularly diagnostic. The raised anterior part of the scutellum differentiates *gariensis* markedly from *clypeatus* but less so from *andrei* from which, however, it differs in both sexes in having narrower and straighter tegula. The male genitalia though similar in plan to those of *andrei* are noticeably narrower.

Etymology.—The name *gariensis*, an adjective, is derived from Garipe, the Nama name for the Orange River which within its great northward curve embraces that part of the Richtersveld in which the present specimens were collected.

***Celonites tumidiscutellatus* Gess,
sp. nov.**

Female.—(Figs. 7–9). Black. The following are reddish-brown: apical half of mandible, underside of antennal club, entire dorsal surface of pronotum, tegula, scutellum to varying degree (ranging from narrow band on posterior margin, through postero-medial marking, to entire posterior two-thirds), middle of metanotum, transverse bands on posterior half of terga I–IV (in the specimen from Willowmore only terga I–III) and entire sides of same, knees, extreme apices of tibiae and all tarsi. The following are dark brown: upperside of antennal club, propodeal lamellae postero-laterally, terga V and VI, sterna, legs (other than parts listed above). Wings infuscated.

Length 7.7–7.9 mm (average of 3: 7.8 mm); length of front wing 5.0–5.2 mm (average of 3: 5.1 mm); hamuli 7–8. Length of extended tongue 4.8–5.0 mm (average of

3: 4.9 mm); tongue length: body length = 0.63.

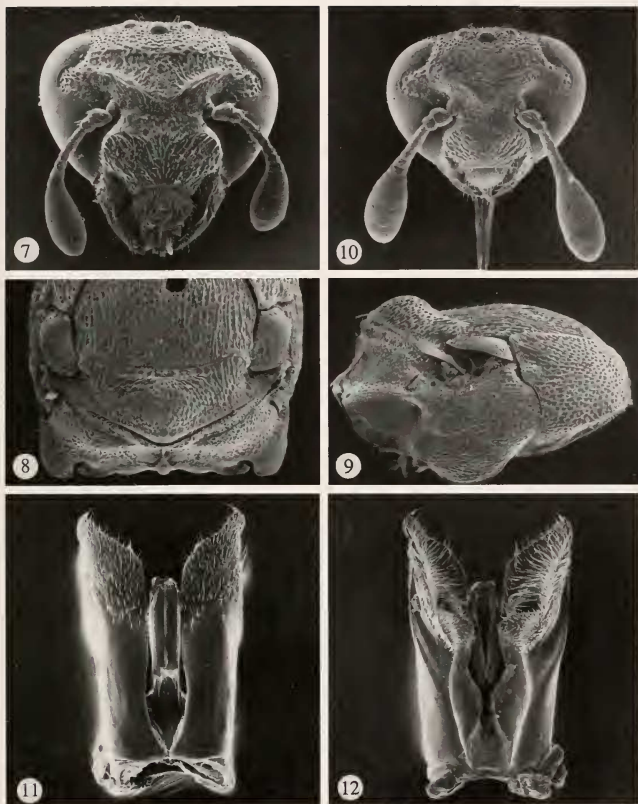
Head (Fig. 7). Clypeus and frons shiny, coarsely rugoso-punctate; vertex dull, less coarsely sculptured. Clypeal carina of the same basic pattern as in *clypeatus*, *andrei* and *gariensis* (that is shallowly M-shaped) but medially very indistinct (where indicated forming an extremely shallow angle). Frons with shallow V-shaped carina, conspicuous except laterally and at medial angle, arising laterally opposite but outside middle of ocular sinuses and meeting at widely obtuse angle just above antennal sockets. Frons, midway between V-shaped carina and anterior ocellus, weakly raised into shallow transverse arc indicated by change in direction of rugosity (transverse as opposed to longitudinal in area below).

Thorax (Figs. 8 and 9). Upper surface of pronotum, mesoscutum, scutellum, tegula and mesopleuron more or less longitudinally rugoso-punctate; mesoscutum in posterior half moderately and evenly depressed; scutellum markedly swollen medially, rising above level of the mesoscutum. Propodeal lamella of each side wide, subtruncate distally, with outer edge convex, separated from median part of propodeum by a spiral slit ending in a circular emargination, with projection of median part somewhat forwardly directed and projecting into it.

Gastral terga uniformly and evenly covered with moderately sized shallow punctures; interspaces of about width of punctures and finely microsculptured.

Male.—(Figs. 10–12). Coloration very similar to that of female but: antenna dark brown overall; scutellum only exceptionally with more than posterior margin reddish-brown; middle of metanotum black; number of gastral terga with transverse reddish-brown posterior bands variable, ranging from I–III to I–VI.

Length 6.7–7.5 mm (average of 3: 7.0 mm); length of front wing 4.4–4.9 mm (average of 3: 4.6 mm); hamuli 6–7. Length of



Figs. 7-12. *Celonites tumidiscutellatus*. 7, Frontal view of head of female ($\times 20$). 8, Dorsal view of posterior two-thirds of mesosoma of female ($\times 20$). 9, Lateral view of right side of mesosoma of female ($\times 20$). 10, Frontal view of head of male ($\times 20$). 11, Dorsal view of genitalia of male ($\times 50$). 12, Ventral view of genitalia of male ($\times 50$).

extended tongue 4.2–4.4 mm (average of 3: 4.3 mm); tongue length: body length = 0.61.

Structure much like that of female differing most noticeably in the following: antennal club both wider and longer, with three sensory depressions beneath; clypeal carina effaced, frontal carina much reduced; gastral terga with postero-lateral angles more strongly projecting; tergum VII compared to tergum VI of female with posterior margin of median part a much flatter curve.

Genitalia (Figs. 11 and 12).

Material examined.—Holotype: female. Cape Province: Namaqualand, Springbok, Hester Malan [now Goegap] Nature Reserve, 10–11.x.1989 (F. W. and S. K. Gess) (in flowers of *Aptosimum spinescens* (Thunb.) Weber, Scrophulariaceae) [AMG]. Paratypes (34 females, 23 males): Cape Province: Namaqualand, Richtersveld National Park, 1.5 km from Helskloof gate (28.18S, 16.57E), 8.ix.1996 (F. W., S. K. and R. W. Gess) 3 males (all on ground near *Aptosimum spinescens*); Namaqualand, Springbok, Hester Malan [now Goegap] Nature Reserve, 15–22.x.1987 (F. W. and S. K. Gess), 2 females (1 in flower of *Aptosimum spinescens*; 1 in Malaise trap); same locality, 10–12.x.1988 (F. W. and S. K. Gess), 1 female, 4 males; same locality and date (D. W. Gess), 5 females, 4 males; same locality, 10–11.x.1989 (F. W. and S. K. Gess), 17 females, 5 males (1 female in flower of *Aptosimum indivisum* Burch. ex Benth., Scrophulariaceae; 1 female, 1 male in flowers of *Aptosimum spinescens*; 2 females, 1 male in flowers of *Peliostomum virgatum* E. Mey., Scrophulariaceae); same locality and date (D. W. Gess), 3 females, 6 males; Springbok, Goegap Nature Reserve (plains), 7.ix.1992 (F. W. and S. K. Gess), 1 male; [Springbok], Goegap [Nature Reserve] (windmill, 29.37S, 17.59E), 4–8.x.1994 (F. W. and S. K. Gess), 3 females (all in flowers of *Aptosimum indivisum*; Namaqualand, [Springbok], Voëlkop (29.45S, 17.22E), 2.x.1994 (F. W.

and S. K. Gess), 1 female (on dry sandy ground); Namaqualand, Klipfontein (29.51S, 17.47E), 14.x.1989 (D. W. Gess), 1 female; Willowmore, 7.x.1971 (C. Jacot-Guillarmod), 1 female [all AMG].

Discussion.—*Celonites tumidiscutellatus* falls into the group of species made up of *clypeatus* Brauns, *andrei* Brauns and *gariensis* Gess. It differs from *gariensis* in lacking yellowish-white markings and from the more similarly coloured *clypeatus* and *andrei* in lacking orange markings on the prepectus. The scutellum is more strongly swollen and raised than that of *clypeatus* and totally different from those of the other two species. The female differs from those of the other species in that the clypeal carina is differently formed and very weak medially and is unique in the development of the raised transverse arc on the upper frons. The male genitalia differ from those of *clypeatus* in that the parameres are distally asymmetrically narrowed and end in a narrowly rounded point rather than being apically broadly rounded. The volsella is of totally different shape.

Etymology.—The name *tumidiscutellatus*, a male adjective, is compounded from the Latin words *tumidus*, swollen, and *scutellatus*, distinguished by the scutellum. It serves to draw attention to a diagnostic character of the species.

Celonites lobeliae Gess, sp. nov.

Celonites sp. E. (Gess, S. K. 1996: Appendices 1 and 2)

Female.—Black. The following are yellowish-white: small spot on either side of frons close to margin of upper orbit (that is, above ocular sinus), small spot on humeral angles, postero-lateral angles of pronotum next to tegulae, lateral margins of propodeal lamellae, small transverse streaks postero-laterally on terga I–IV and minute postero-medial spot on tergum V. The following are reddish-brown: apical half of mandible, underside of antennal

club, continuous very narrow band along posterior margin of pronotum, pronotal lobe, tegula, metanotum, transverse posterior bands (anteriorly expanded laterally) on terga I–III, lateral margins of terga IV and V, diffuse area on tergum VI, sterna I–III and parts of sterna IV–VI, most of front femora and apices of middle and hind femora, and all tibiae and tarsi. The following are dark brown: upper side of antenna, postero-medial parts of terga IV–V, legs other than for parts already noted. Wings lightly infuscated.

Length 8.2 mm; length of front wing 5.4 mm; hamuli 10.

Head and clypeus coarsely rugosopunctate, clypeus steeply raised laterally, its disc flat, not carinate. Frons obliquely raised and subtuberculate immediately above each antennal socket, raised areas separated medially by a little less than interantennal distance, therefore not forming a V-shaped carina.

Upper surface of pronotum, mesoscutum, scutellum, propodeum and gastral terga moderately coarsely and closely punctured with narrow microsculptured interspaces; scutellum almost flat, only slightly raised above adjacent part of mesoscutum. Propodeal lamella of each side subtruncate distally, with outer edge gently convex and postero-lateral corner smoothly rounded, separated from median part of propodeum by a wide spiral slit; projection of median part of the propodeum transverse, apically rounded.

Male.—(Figs. 13 and 14). Black. The following are yellowish-white: labrum, transverse marking flanking anterior margin of clypeus, one or two small spots proximally on clypeal disc, variously shaped spot within each ocular sinus and pair of spots on supra-antennal tubercles, small spot on humeral angles, very narrow interrupted band on posterior margin of pronotum (present in one specimen only), variously sized spot on prepectus, pair of small spots laterally on scutellum (present in one specimen only), lat-

eral margin of propodeal lamellae, small transverse streaks postero-laterally on terga I–IV and small postero-medial spots on terga I–VI (both series of markings in one specimen only), spot on distal end of front femora, base of front tibia and to a lesser extent bases of middle and hind tibiae. Distribution of reddish-brown and dark brown markings similar to those of female.

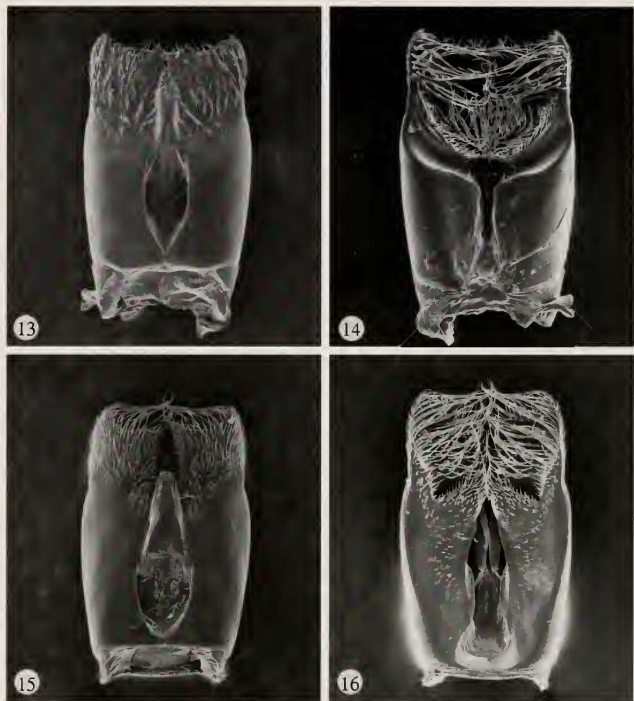
Length 6.7–7.7 mm; length of front wing 4.3–4.8 mm; hamuli 6–7. Length of extended tongue of larger specimen 4.3 mm; tongue length: body length = 0.55.

Apart from the usual secondary sexual differences of the antennal club and gastral terga, the structure is very similar to that of the female.

Genitalia (Figs. 13 and 14).

Material examined.—Holotype: female. Cape Province: Betw[een] Nieuwoudtville and top of Vanrhyns Pass, 29–30.ix.1990 (F. W. and S. K. Gess) (on purple flowers of *Lobelia* sp., Lobeliaceae) [AMG]. Paratypes (2 males): Cape Province: Betw[een] Nieuwoudtville and top of Vanrhyns Pass, 29–30.ix.1990 (F. W. and S. K. Gess) (1 on purple flowers of *Lobelia* sp., 1 on ground in the vicinity of the plant) [both AMG].

Discussion.—*Celonites lobeliae* can easily be confused with *C. promontorii* Brauns for not only do the two species look superficially similar but, judging from the type locality, they may at least partially overlap in distribution. *Celonites lobeliae* can be distinguished in having the antennal club more gracile, the sides of the clypeus more strongly raised, the swelling on the frons above the antennal sockets stronger and subtuberculate, the puncturation of the head (and to a less extent of the thorax) coarser, the clypeus and frons not shiny, the mesonotum hardly depressed posteriorly and the scutellum flatter and hardly raised above the level of the mesonotum, the postero-lateral angles of terga II–V of the female and II–VI of the male almost right-angled (not acutely produced) and the last tergum with lateral angles obtuse-



Figs. 13-16. *Celonites lobeliae*. 13, Dorsal view of genitalia of male ($\times 50$). 14, Ventral view of genitalia of male ($\times 50$). 15-16. *Celonites promontorii*. 15, Dorsal view of genitalia of male ($\times 45$). 16, Ventral view of genitalia of male ($\times 45$).

ly rounded (not acutely produced). In *lobeliae* the ratio of the distance between an eye and a posterior ocellus: distance between the posterior ocelli is 5.2: 10 in the female and 4.1: 10 in the male, whereas in *promontorii* the ratio is 6.7: 10 and 6.2: 10, respectively. The male genitalia are mark-

edly different (compare Figs. 13 and 14 with 15 and 16).

Etymology.—The name *lobeliae*, genitive singular, is formed from the generic name of the plant, *Lobelia* (Lobeliaceae), in the flowers of which the wasp was found foraging for nectar or nectar and pollen.

Jugurtia Saussure, 1854
Jugurtia duplicata Richards

Jugurtia duplicata Richards, 1962: 263, male. Holotype: male, South Africa: Van Rhynsdorp [sic] (SAM).

This species was described from 6 males collected at Vanrhynsdorp during the months of July and August, 1927. The female of this very distinct species has hitherto been undescribed.

Female.—Black. Lamellate margin of scutellum creamy-white. The following are reddish-brown: mandible to variable extent (all but extreme base, only distally, or not at all), underside of swollen distal flagellomeres (to variable extent), narrow streak at top of tempora behind eyes, tegula and dorso-lateral angle of pronotum adjacent to it, terga I and II (except base of I, diffuse antero-medial patch and sometimes extreme sides of II), posterior transverse band not reaching sides on tergum III and usually IV, knees of all legs (sometimes), dorsal proximal streak on front tibia (usually), all tarsomeres (to variable extent). Wings subhyaline, darker than those of male, venation brown.

Length 8.6 mm; length of front wing 5.8 mm; length of extended tongue 3.7 mm; hamuli 8.

Antenna short, rather abruptly clavate; scape (with radicle) $3.2 \times$ as long as greatest width and $2 \times$ as long as combined length of pedicel and flagellomere I; flagellomeres I–X, respectively, with the following relative lengths (and breadths) [the length of flagellomere I being taken as 1.0]—1.0 (0.63), 0.63 (0.65), 0.50 (0.85), 0.63 (1.0), 0.85 (1.44), 0.88 (1.75), 1.0 (1.95), 0.90 (1.88), 0.81 (1.80), 0.94 (end rounded). Vertex behind ocelli depressed in front of preoccipital carina (as in male). Propodeum laterally obtusely angulate in profile. Punctuation of head and body similar to that of male.

Material examined.—Cape Province: Namaqualand, Richtersveld National Park, Koeroegabvlakte (28.11S, 17.03E),

19.ix.1995 (F. W., S. K. and R. W. Gess), 1 female (at water) [AMG]; Namaqualand, Richtersveld National Park, Paradise Kloof (28.19S, 17.01E), 22.ix.1995 (F. W., S. K. and R. W. Gess), 5 females (4 at water and 1 on pink flowers of *Drosanthemum* sp., Aizoaceae: Mesembryanthema) [AMG]; Namaqualand, Springbok, Goegap Nature Reserve (hills), 8–10.ix.1992 (F. W. and S. K. Gess), 1 female, 3 males (1 male on wet sand) [AMG]; Namaqualand, [Springbok], Goegap [Nature Reserve] nr Kraaiwater (29.37S, 18.00E), 3–4.x.1994 (F. W. and S. K. Gess), 2 females (1 on white-centred pink flowers of *Drosanthemum* cf. *hispidum*, Aizoaceae: Mesembryanthema and 1 on sand in dry water course) [AMG]; Namaqualand, W end of Wildeperdehoek Pass (29.56S, 17.37E), 14.x.1989 (F. W. and S. K. Gess), 5 females (at water) [AMG]; same locality and date (D. W. Gess), 1 female (at water) [AMG]; Namaqualand, ca. 5 km NNW of Kamieskroon, 21.viii.1991 (T. F. Houston), 1 male [AMG]; Namaqualand, Grootvlei Pass, 16 km W of Kamieskroon, 11.ix.1992 (F. W. and S. K. Gess), 1 female (on pink flowers of *Leipoldtia constricta* (L. Bol.) L. Bol., Aizoaceae: Mesembryanthema) [AMG]; Namaqualand, Knersvlakte (31.26S, 18.42E), 4.ix.1996 (F. W., S. K. and R. W. Gess), 1 female (visiting deep pink flowers of "mesem," Aizoaceae: Mesembryanthema) [AMG]; 15 km N of Nieuwoudtville on road to Loeriesfontein, 3–8.x.1989 (F. W. and S. K. Gess), 27 females (25 at water and 2 visiting flowers of *Pteronia* cf. *divaricata* (Berg) Less., Asteraceae) [AMG]; same locality and date (D. W. Gess), 11 females (3 at water) [AMG]; Nieuwoudtville, Skuinshoogte Pass (31.16S, 19.08E), 23–30.ix.1994 (F. W. and S. K. Gess), 17 females (10 at water, 2 on dry river bed, 1 on ground above river bed, 3 on white cone flowers of Aizoaceae: Mesembryanthema, 1 on purplish-pink flowers of Aizoaceae: Mesembryanthema) [AMG]; Clanwilliam distr., Biedouw Valley (32.08S, 19.14E), 7.ix.1988 (C. D. Eardley), 1 female [NCP].

***Jugurtia tigrina* Gess, sp. nov.**

Jugurtia sp. C. (Gess, S. K. 1996: Appendices 1 and 2)

Female.—Black. The following are whitish-yellow to yellow: roughly triangular, basomedian spot on clypeus and broad oblique band on each side of raised disc of same (leaving V-shaped black area, of which arms arise near antennal sockets and point ends in middle of clypeal emargination); large, strongly upwardly bilobed marking on frons between and above antennal sockets (narrowly separated from median clypeal marking); minute elongate spot on inner orbits below level of antennal sockets; broad marking that fills ocular sinus and extends obliquely upwards to level of lower margin of hind ocelli; broad streak on outer orbits from below level of ocular sinus to top of eye; anterior and posterior margins of dorsal surface of pronotum; median streak on posterior half of mesoscutum; small spot on axilla, posterior half of raised scutellar disc, lamellate margin of scutellum, anterior and posterior parts of tegula (leaving between them a clear testaceous area); large dorsal spot anteriorly on mesopleuron (on prepectus) and contiguous smaller dorsal spot posterior to it; most of dorso-lateral surface of propodeum; broad transverse posterior bands on terga I–V (sometimes somewhat widened laterally), sometimes a pair of spots on tergum VI; diffuse posterior markings on sterna II–V; apex of femora and most of tibiae. The following are various shades of light brownish-orange: mandible, palps, antenna (except for black upper surface of scape and pedicel), tarsomeres, ill-defined areas within pale bands on terga and flanking pale markings on sterna, sometimes middle of tergum VI. Wings nearly hyaline.

Length 7.7–8.3 mm, length of front wing 5.0–5.3 mm; hamuli 10.

Antenna sort, abruptly clavate; scape (with radicle) $2.8 \times$ as long as greatest width and $2 \times$ as long as combined length

of pedicel and flagellomere I; flagellomeres I–X, respectively, with the following relative lengths (and breadths) [the length of flagellomere I being taken as 1.0]—1.0 (0.82), 0.64 (0.91), 0.64 (0.91), 0.64 (1.18), 0.64 (1.55), 1.09 (2.09), 1.18 (2.36), 1.18 (2.45), 1.18 (2.36), 1.27 (end rounded). Clypeus, frons and vertex shiny, with coarse, shallow punctures; clypeus with ventral emargination curved but shallow and with margin slightly upwardly produced; vertex behind ocelli not depressed in front of preoccipital carina.

Pronotum and mesoscutum shiny, coarsely and closely punctured; median, longitudinally keeled depression on posterior half of mesoscutum less coarsely punctured; scutellum similarly punctured to mesoscutum, weakly depressed centrally, moderately bituberculate posteriorly; mesopleuron shiny, coarsely and closely punctured dorsally, more finely and more sparsely punctured with unsculptured interspaces ventrally; propodeum laterally smoothly curved in profile, moderately coarsely and closely punctured and sides in addition longitudinally rugose.

Gastral terga shiny, microscopically punctured, with in addition coarse close punctures on tergum I and baso-lateral parts of tergum II and smaller well separated punctures (becoming progressively weaker on posterior terga) on rest of terga.

Male.—Black. The following are whitish-yellow to yellow: scape, pedicel and first two or three flagellomeres; mandible (except apical tooth); palps; entire labrum and clypeus; large and sometimes bilobed marking on frons between and above antennal sockets; band margining entire lower inner orbits and merging above with marking that fills ocular sinus and is sometimes carried obliquely upwards to level of lower edge of fore-ocellus (in some specimens median and lateral frontal markings largely fused, leaving only narrow oblique black streak above antennal sockets); outer orbits from below level of ocular sinus to top of eye; entire dorsal

surface of pronotum (that is, entire surface between anterior and posterior margins other than for occasional small irregular black marks); median streak on posterior half of mesoscutum; small spot on axilla; posterior half of raised scutellar disc; lamellate margin of scutellum; anterior and posterior parts of tegula (leaving between them a clear testaceous area); large dorsal spot anteriorly on mesopleuron (on prepectus) and two smaller spots contiguous with and situated posteriorly and ventrally to it; two small spots on mesosternum anterior to coxae; broad transverse posterior bands on terga I–VI (hardly widened laterally); most of normally exposed part of tergum VII; sterna to a large extent; coxae, trochanters, femora (except for limited dark stripes), tibiae and at least first tarsomeres of all legs. The following are various shades of light brownish-orange: flagellomeres III or IV–X (except for dorsal infuscation); ill defined and diffuse areas within pale bands on terga and on sterna; sometimes distal tarsomeres. Wings nearly hyaline.

Length 7.3–7.5 mm, length of front wing 5 mm; hamuli 8.

Antenna of normal length, flagellomeres IV–X forming elongate, curved and simple club (not hollowed out beneath); scape (with radicle) $2.4 \times$ as long as greatest width and $1.4 \times$ as long as combined length of pedicel and flagellomere I; flagellomeres I–X, respectively, with the following relative lengths (and breadths) [the length of flagellomere I being taken as 1.0]—1.0 (0.59), 0.73 (0.59), 0.73 (0.64), 0.82 (0.86), 0.82 (1.14), 0.91 (1.36), 1.0 (1.45), 0.91 (1.55), 0.91 (1.45), 1.18 (end rounded). [The foregoing description and measurements are taken from one paratype; the other from the same locality has both flagella appearing 9-segmented, flagellomeres III and IV being almost completely fused and together being only slightly longer (1.2–1.3) than the normal length of either of the constituent flagellomeres alone.]

Gastral terga II–VI moderately constricted anteriorly, narrower than corresponding terga of female; tergum VII produced and narrowly emarginate apically. Punctuation similar to that of female.

Material examined.—Holotype: female. Cape Province: Namaqualand, Springbok, Hester Malan [now Goegap] Nature Reserve], 15–21.x.1987 (F. W. and S. K. Gess) (at water) [AMG]. Paratypes (39 females, 5 males): Cape Province: Namaqualand, Springbok, Hester Malan [now Goegap] Nature Reserve], 15–21.x.1987 (F. W. and S. K. Gess) 34 females (29 at water, 1 on ground, 3 Malaise trap) [AMG]; same locality, 10–12.x.1988 (F. W. and S. K. Gess), 1 female [AMG]; Namaqualand, [Springbok], 5 km from Kokerboom Hotel on road to Droëdap (29.44S, 17.55E), 8.x.1994 (D. W. Gess), 1 female [AMG]; Namaqualand, Klipfontein (29.51S, 17.47E), 14.x.1989 (D. W. Gess), 1 female [AMG]; Namaqualand, 6–13 mij[les] S Mesklip, 21.x.1968 (J. G. Rozen and E. Martinez), 1 female [AMG]; Namaqualand, Farm Arkoep, 6 km N Kamieskroon (30.19S, 17.56E), 1–2.x.1990 (C. D. Eardley), 1 female, 3 males [NCP]; Nieuwoudtville Falls, 5 km N of Nieuwoudtville, 28.ix.1990 (F. W. and S. K. Gess), 2 males (on yellow flowers of *Leysera gnaphaloides* (L.) L., Asteraceae) [AMG].

Etymology.—The name *tigrina*, a Latin female adjective meaning tiger-like, refers to the yellow and black markings and in particular to the tiger-like banding of the abdomen.

***Jugurtia eburnea* (Turner), new status**

Masariella turneri eburnea Turner, 1935: 299, fig. 3, male holotype, female allotype (SAM).

Masariella turneri (non Schulthess 1929) Schulthess, 1935: 384, male allotype [= male holotype of *Jugurtia polita* Richards, 1962] (NHML).

Jugurtia polita Richards, 1962: 256, male holotype, female allotype (NHML). New synonym.

Material examined.—Cape Province: 15 km N of Nieuwoudtville on road to Loeriesfontein, 3–8.x.1989 (F. W. and S. K. Gess), 3 females (visiting flowers of *Osteospermum* cf. *oppositifolia* (Ait.) T.Norl., Asteraceae), 1 male (visiting flowers of *Senecio* sp. prob. *nivea* Less., Asteraceae) [AMG]; same locality and date (D. W. Gess), 1 male [AMG]; Nieuwoudtville Falls, 5 km N of Nieuwoudtville, 28.ix.1990 (F. W. and S. K. Gess), 1 female (without flower visiting record), 6 males (on yellow flowers of *Leysera gnaphaloides* (L.) L., Asteraceae) [AMG]; Nieuwoudtville, Skuinshoogte Pass (31.16S, 19.08E), 23–30.ix.1994 (F. W. and S. K. Gess), 7 females, 1 male (6 females at water, 1 female on ground above river bed, male on dry river bed) [AMG]; Namaqualand, Springbok, Hester Malan [now Goegap] Nature Reserve], 15–21.x.1987 (F. W. and S. K. Gess), 2 males (Malaise trap) [AMG]; same locality, 10–12.x.1988 (F. W. and S. K. Gess), 1 female, 7 males [AMG]; Namaqualand, [Springbok], Goegap [Nature Reserve] (windmill, 29.37S, 17.59E), 4–8.x.1994 (F. W. and S. K. Gess), 3 females (all on wet sand) [AMG]; Namaqualand, Farm Arkoep, 6 km N Kamieskroon (30.19S, 17.56E), 1–2.x.1990 (C. D. Eardley), 1 male [NCP]; Namaqualand, Kamieskroon, Sept. 1930 (Museum Staff), holotype male and allotype female [SAM].

Discussion.—Schulthess (1929) described the species *turneri* from 4 females from 38 m[iles] E of Ceres (17–25.xi.24). Subsequently Schulthess (Sept. 1935) described as the male of *turneri* a specimen collected together with 14 females from a locality given by him as Calvinia, Nieuwoudtville [sic] (11–22.xi.31). This provenance is inexact as the two towns are separated by 69 km! Amongst other characters of this male Schulthess mentioned the very long antennae. He made no comment with regard to the females.

Richards (1962) examined Schulthess' material and recognized that the male and associated females of Schulthess (1935)

were not conspecific with the females of Schulthess (1929). At the same time he correctly recognized a male from Matjesfontein as the true male of *turneri* and described it as such. The specimens of Schulthess (1935) were believed by Richards to represent a new species which he named *polita*. The male described by Schulthess (1935) and erroneously designated by him as the allotype of *turneri* was designated by Richards as the holotype of *polita*. Collection data of this specimen were given more precisely than before as Calvinia (11–16.xi.31). Of the associated conspecific females mentioned by Schulthess, Richards' allotype and eight paratypes have the same data as the holotype and two further paratypes have the data Blaukrans, near Calvinia (17.xi.31).

Preceding by a few months the second Schulthess publication, Turner (Febr. 1935) under the name *eburnea* described both sexes of what be believed to be a subspecies ("race") of *turneri* of Schulthess (1929) from Kamieskroon, Namaqualand. He briefly compared the females and stated how they differed. The more comprehensive description of the male not only described the antennae in detail but also figured them.

Richards (1962) under his account of *turneri* mentioned that Turner had described a subspecies *eburnea* but stated that he had not seen Turner's specimens. These specimens, a holotype male and an allotype female, housed in the South African Museum, have been examined by the present author. They are not *turneri* nor a subspecies thereof but are conspecific with *polita* Richards. The name *eburnea* Turner, 1935 has priority over *polita* Richards, 1962, and the latter name therefore becomes a synonym.

Jugurtia turneri (Schulthess)

Masariella(?) *turneri* Schulthess, 1929: 499, 500–501, fig. 1, female. Holotype: female, South Africa: Little Karoo, 38 m[iles] E of Ceres (NHML)
not *Masariella turneri* Schulthess subsp. *eburnea*

Turner, 1935: 384, male, female [= *Jugurtia eburnea* (Turner)]
not *Masariella turneri* Schulthess, Schulthess,
1935: 384, male [= *Jugurtia eburnea* (Turner)]
Jugurtia turneri (Schulthess): J. Bequaert, 1937:
343; Richards, 1962: 257.

Material examined.—Cape Province, Dor-
ingbos, 3.xi.1966 (J. G. Rozen), 3 males
[AMG]; 43 km ENE of Ceres on road to
Sutherland, 2–3.xii.1989 (S. K. Gess), 3 fe-

males, 1 male (on flowers of *Athanasia tri-
furcata* (L.) L., Asteraceae); same locality
and date (F. W. Gess), 4 females, 2 males
(3 females, 1 male on flowers of *Athanasia*
sp.; 1 female, 1 male on flowers of *Senecio*
rosmarinifolia L.f., Asteraceae); same local-
ity and date (R. W. Gess), 1 male (on flow-
ers of *Athanasia* sp.) and (H. W. Gess), 1
female, 1 male (without flower visiting re-
cords) [all AMG].

KEY TO SOUTHERN AFRICAN *JUGURTIA* WITH EXTENSIVE PALE (WHITE, CREAM OR YELLOW)
MARKINGS (THAT IS *EBURNEA*, *TIGRINA* AND *TURNERI*)

- 1. Males. 2
- Females. 4
- 2. Antennae very long, reaching back beyond tergum I; flagellomeres I–VII greatly elongated
(ratio of length to breadth being 2.3:1 for I, 5:1 for II–VI, 3.8:1 for VII), VIII–X forming an
oval sharply defined club *eburnea* (Turner) (syn. *polita* Richards)
- Antennae of normal length, reaching back at most to middle of mesoscutum; flagellomeres
I–VII not greatly elongated (ratio of length to breadth never exceeding 2.4:1 and generally
much smaller), VI–X forming an elongate curved club 3
- 3. Flagellomeres I–III gracile, long relative to breadth, ratio of length to breadth being 2.4:1,
2:1, and 1.6:1, respectively. Mesoscutum entirely black. Gastral terga II–V with punctures
close, with transverse posterior pale bands narrow, considerably and abruptly widened
medially and laterally; tergum VI black except on extreme sides and at apex
..... *turneri* (Schulthess)
- Flagellomeres I–III robust, short relative to breadth, ratio of length to breadth being 1.7:1,
1.2:1, and 1:1, respectively. Mesoscutum with median yellow streak in posterior half. Gas-
tral terga II–V with punctures well separated, with transverse posterior pale bands wide,
slightly and gradually widened laterally; tergum VI yellow except at extreme base
..... *tigrina* Gess sp. nov.
- 4. Propodeum laterally with conspicuous tubercle. *eburnea* (Turner) (syn. *polita* Richards)
- Propodeum laterally without tubercle. 5
- 5. Propodeum laterally obtusely angulate in profile. Mesoscutum entirely black. Gastral terga
II–V with punctures close, with transverse posterior pale bands narrow, considerably and
abruptly widened medially and laterally; tergum VI black *turneri* (Schulthess)
- Propodeum laterally smoothly curved in profile. Mesoscutum with a median yellow streak
in posterior half. Gastral terga II–V with punctures well separated, with transverse pos-
terior pale bands wide, slightly and gradually widened laterally; tergum VI brownish-
orange and sometimes with a pair of yellow spots *tigrina* Gess sp. nov.

Jugurtia codoni Gess sp. nov.

Female.—Black. The following are yel-
lowish-white: small crescent-shaped mark
at bottom of ocular sinus; streak at top of
tempora behind eyes; narrow transverse
streak medially on pronotal dorsum
(streak sometimes broken up into separate

dots or totally effaced); narrow streak on
humeral angles; posterior angles of pro-
notum adjacent to tegulae; lateral margins
of scutellum; narrow transverse posterior
bands (generally of even width but occa-
sionally slightly widened medially and
laterally) on terga I–IV. Underside of fla-
gellomeres VI–X orange. The following

are various shades of reddish-brown: usually distal half of mandible; tegula; knees of all legs; short streak dorsally on basal half of front tibia; and front tarsomeres. Remaining parts of legs brown. Wings lightly infusate.

Length 7.7–8.3 mm (average of 5: 8.0 mm); length of front wing 4.9–5.3 mm (average of 5: 5.2 mm); hamuli 7–9 (usually 7). Length of extended tongue 3.2–3.6 mm (average of 5: 3.5 mm); tongue length: body length = 0.43.

Antenna short, abruptly clavate; scape closely and finely punctured; scape (with radicle) $2.6 \times$ as long as greatest width and $2.2 \times$ as long as combined length of pedicel and flagellomere I; flagellomeres I–X, respectively, with the following relative lengths (and breadths) [the length of flagellomere I being taken as 1.0]—1.0 (0.9), 0.6 (1.7), 0.7 (1.7), 0.8 (1.8), 0.8 (2.1), 1.0 (2.2), 1.3 (2.0), 1.3 (2.2), 1.5 (1.7), 1.4 (end rounded). Clypeus, frons and vertex shiny, coarsely but shallowly reticulate punctate; vertex behind ocelli weakly depressed in front of preoccipital carina.

Pronotum and mesoscutum shiny, coarsely and closely punctured; mesoscutum in posterior half almost flat (that is lacking a carinate depression), with interspaces (especially in a median longitudinal band and posteriorly) closely and finely punctured; scutellum similarly punctured to posterior portion of mesoscutum, only slightly raised above mesoscutum, anteriorly sloping down onto it (that is, not falling to mesoscutum abruptly and step-like), only inconspicuously depressed centrally, hardly tuberculate posteriorly; mesopleura shiny, punctured like pronotum in upper half, with sparser and smaller punctures in lower half; angles of propodeum with bluntly rounded projections. Tegula shiny, virtually impunctate, in basal half with sides subparallel, in apical half with outer margin slightly expanded before curving smoothly and obliquely to rounded inner posterior corner. Spurs of middle tibia of average length; outer spur

markedly curved apically; inner spur straight.

Gastral terga shiny, with microscopical punctures interspersed with larger but shallow, well separated punctures that become progressively smaller on apical terga. Sterna shiny, sparsely punctured.

Male.—Coloration and markings similar to those of female, with additional yellowish-white markings as follows: small spot at base of mandible; small streak on inner orbits above level of antennal sockets; sometimes a small supraclypeal marking variously broken up into spots; narrow transverse posterior band on tergum V; postero-medial spot on tergum VI. Antenna black throughout.

Length 7.5–7.6 mm; length of front wing 4.7–5.1 mm; hamuli 7–8. Length of extended tongue 3.0 mm; tongue length: body length = 0.40.

Structure similar to that of female, differing most noticeably in the following: antenna longer; flagellomeres VI–X forming an elongate markedly curved club; last three flagellomeres flattened beneath and together forming a wide hook; scape (with radicle) $2.2 \times$ as long as greatest width and $1.2 \times$ as long as combined length of pedicel and flagellomere I; flagellomeres I–X respectively with the following relative lengths (and breadths) [the length of flagellomere I being taken as 1.0]—1.0 (0.55), 0.80 (0.60), 0.80 (0.70), 0.90 (0.80), 0.90 (0.90), 1.0 (1.55), 1.20 (1.70), 1.10 (1.70), 1.20 (1.50), 2.1 (end rounded); metasoma narrower relative to its length; tergum VII with posterior margin rounded except for small semi-circular emargination medially; sternum II posteriorly with a pair of pronounced, widely separated and smoothly rounded transverse tubercles; sternum III posteriorly with a pair of low transverse swellings.

Material examined.—Holotype: female. Cape Province: Namaqualand, Richtersveld National Park, Koeroegabvlakte (28.11S, 17.03E), 17–21 and 24.ix.1995 (F. W., S. K. and R. W. Gess) (on white flow-

ers of *Codon royenii* L., Hydrophyllaceae) [AMG]. Paratypes (72 females, 4 males): Cape Province: Namaqualand, Richtersveld National Park, Koeroegabvlakte (28.11S, 17.03E), 17–21 and 24.ix.1995 (F. W., S. K. and R. W. Gess) 63 females (54 on white flowers of *Codon royenii* L., Hydrophyllaceae; 5 in deep violet flowers of *Peliostomum* sp., Scrophulariaceae; 3 on deep pink flowers of *Hermbstaedtia glauca* (Wendl.) Reichb. ex Steud., Amaranthaceae; 1 without further data); same locality, 6.ix.1996 (F. W., S. K. and R. W. Gess) 2 females (1 in deep purple flowers *Peliostomum* sp.; 1 on ground nr flowering *Peliostomum* sp.); Namaqualand, Richtersveld National Park, betw[een] hills (28.08S, 17.01E), NW of Koeroegabvlakte, 14.ix.1996 (F. W., S. K. and R. W. Gess) 4 females, 3 males (1 female on yellow flowers of *Zygophyllum meyeri* Sond., Zygophyllaceae; 3 females on pink flowers of *Senecio arenarius* Thunb., Asteraceae; 2 males sunning themselves on rocks nr last named plant; 1 male on dry sandy river bed); Namaqualand, Richtersveld National Park, Paradise Kloof (28.19S, 17.01E), 22.ix.1995 (F. W., S. K. and R. W. Gess), 2 females (at water); Namaqualand, Richtersveld National Park, 1.5 km from Hel-skloof gate (28.18S, 16.57E), 9.ix.1996 (F. W., S. K. and R. W. Gess) 1 female, 1 male (male on white flowers *Pelargonium klinghardtense* Knuth, Geraniaceae) [all AMG].

Discussion.—*J. codoni* is a very distinct, small, predominantly black-bodied and black-legged species, lacking clypeal and supraclypeal markings (latter sometimes weakly indicated in male) and frontal spots and without any red on the pronotum, scutellum and gastral terga, but with narrow yellowish-white transverse posterior bands on terga I–IV in female and I–V in male.

Etymology.—The name *codoni*, genitive singular, is formed from the generic name of the plant, *Codon royenii* L. (Hydrophyllaceae), in the flowers of which the wasp was found foraging for nectar and pollen.

Codon royenii is endemic to Namaqualand and Namibia.

***Jugurtia koeroegabensis* Gess sp. nov.**

Female.—Black. The following are reddish-brown: mandible (other than base and apex); sometimes median spot on basal half of clypeal disc and a pair of smaller spots on lateral angles; pair of large supraclypeal spots; spots in ocular sinuses; pair of small spots on frons adjacent to eyes above ocular sinuses (sometimes fused with spots in ocular sinuses to form a continuous band); sometimes pair of minute spots adjacent to eyes at level of hind ocelli; streaks on upper tempora behind eyes; pronotum (other than for anterior face); median streak on posterior half of mesoscutum; spot on axilla; disc of scutellum; large spot on prepectus; tegula; dorso-lateral parts of propodeum; whole metasoma (except sometimes lowermost third of declivity of tergum I); apical third of all femora; entire tibiae and tarsi. Underside of flagellomeres IV–X is yellow. In some specimens the following may be yellow rather than reddish-brown: very bottom of ocular sinus; dorso-lateral corners of pronotum; lateral margins of scutellum; diffuse narrow transverse posterior bands on terga II–V. Wings hyaline, not infuscated.

Length 6.9–8.1 mm (average of 7: 7.5 mm); length of front wing 4.8–5.1 mm (average of 7: 5.0 mm); hamuli 7–9.

Antenna short, abruptly and strongly clavate; scape (with radicle) $2.8 \times$ as long as greatest width and $1.7 \times$ as long as combined length of pedicel and flagellomere I; flagellomeres I–X, respectively, with the following relative lengths (and breadths) [the length of flagellomere I being taken as 1.0]—1.0 (0.85), 0.54 (1.57), 0.62 (1.38), 0.54 (2.00), 0.5 (2.43), 0.92 (1.92), 1.15 (1.87), 1.31 (1.76), 1.15 (1.87), 1.0 (end rounded). Clypeus, frons and vertex finely reticulate punctate; vertex behind ocelli not depressed and with preoccipital carina narrow.

Dorsal surface of pronotum, mesoscutum and scutellum coarsely punctured, with interspaces micro-sculptured; mesoscutum in posterior half (that is lacking carinate depression); scutellum moderately raised above mesoscutum and falling steeply onto it; scuto-scutellar furrow wide, crossed by about 12 well-defined carinae; scutellar disc not depressed centrally; angles of propodeum with bluntly rounded projections. Tegula with a few scattered punctures in posterior half, in basal half with sides subparallel, in apical half with outer margin slightly expanded before curving smoothly and obliquely to acutely and narrowly rounded inner posterior corner. Spurs of middle tibiae of average length, straight.

Gastral terga shiny, with microscopical punctures interspersed with larger, shallow, well separated punctures that become progressively smaller on apical terga). Sterna shiny, sparsely punctured.

Male.—Black. The following are lemon-yellow: mandible (except extreme base and apex); disc of clypeus; most of frons from fronto-clypeal suture to just below level of anterior ocellus (at which level marking is tri-lobed) but excluding an area broadly margining the lower part of eyes from antennal insertion to partially within ocular sinuses (however, not extending as far as bottom of latter); underside of antennal scape (but not radicle); underside of pedicel and flagellomeres I–IV or V; pronotum (other than for anterior face and dorso-lateral areas); lateral margins of scutellum; tegula anteriorly; broad diffuse areas on median third of terga I–III. Reddish-brown (grading through orange to the lemon-yellow delimited above) are: flagellomeres VI–X (other than for longitudinal black band); narrow streak on tempora behind eyes; dorso-lateral areas of pronotum; large spot on prepectus; posterior two-thirds of tegula; median streak on posterior half of mesoscutum; spot on axilla; scutellar disc posteriorly; dorso-lateral parts of propodeum;

entire metasoma (except lowermost third of declivity of tergum I and for diffuse yellow areas described above); apical third of femora, entire tibiae and tarsi. Wings hyaline, not infuscated.

Length 6.6–7.2 mm (average of 7: 6.8 mm; length of front wing 4.4–4.7 mm (average of 7: 4.5 mm); hamuli 7–8.

Antenna short, strongly clavate; flagellomeres VII–X enlarged and together forming a smoothly curved hook; flagellomeres VIII–X markedly excavated ventrally to form a continuous (that is single) oblique depression with rounded margins; scape (with radicle) $2.8 \times$ as long as its greatest width and $1.5 \times$ as long as its combined length of pedicel and flagellomere I; flagellomeres I–X, respectively, with the following relative lengths (and breadths) [the length of flagellomere 1 being taken as 1.0]—1.0 (0.71), 0.53 (1.30), 0.59 (1.30), 0.59 (1.50), 0.59 (1.80), 1.0 (1.41), 0.94 (1.88), 1.24 (1.67), 1.12 (1.89), 1.53 (end rounded).

Tergum VII with posterior margin rounded except for a small semi-circular emargination medially. Punctures larger, somewhat sparser than in female (especially on pronotum and mesoscutum), with shiny, smooth (not microsculptured) interspaces.

Material examined.—Holotype: female. Cape Province: Namaqualand, Richtersveld National Park, Koeroegabvlakte (28.11S, 17.03E), 17–21 and 24.ix.1995, (F. W., S. K. and R. W. Gess) (on small cream flowers of *Zygophyllum prismatocarpum* E. Mey. ex Sond., Zygophyllaceae) [AMG]. Paratypes (15 females, 16 males): Cape Province: Namaqualand, Richtersveld National Park, Koeroegabvlakte (28.11S, 17.03E), 17–21 and 24.ix.1995, (F. W., S. K. and R. W. Gess) 5 females, 1 male (2 females on small cream flowers of *Zygophyllum prismatocarpum* E. Mey. ex Sond., Zygophyllaceae; 1 female on yellow flowers of *Zygophyllum* sp.; 1 female on yellow flowers of *Osteospermum* sp., Asteraceae; male on floor of dry watercourse); Na-

maqualand, Richtersveld National Park, Pootjiespram (28.05S, 16.57E), 16.ix.1995 (F. W., S. K. and R. W. Gess), 1 female (on yellow flowers of *Cleome paxii* (Schinz) Gilg & Ben., Capparaceae); same locality, 7.ix.1996 (F. W., S. K. and R. W. Gess), 9 females, 15 males (1 female in deep violet flowers of *Peliostomum leucorrhizum* E. Mey. ex Benth., Scrophulariaceae; 2 females on flowers of *Ferraria* cf. *divaricata*, Iridaceae; 6 females, all 15 males on ground in dry drainage channel) [all AMG].

Discussion.—The species is easily recognizable in both sexes by the body coloration in conjunction with the hyaline, non-infuscated wings, and in the male by the characteristically modified antennae.

Etymology.—The name *koeroegabensis*, an adjective derived from the Nama word *koeroegab*, "plenty of flintstone," refers to the white quartz which outcrops all over the Richtersveld. Koeroegab is applied specifically to a mountain and to the adjacent Koeroegabvlakte (vlaktes, "plain" in Afrikaans), the latter being the locality where most specimens collected during the 1995 expedition were found in and about a dry watercourse.

Masarina Richards, 1962

Masarina Richards 1962 was listed as a junior subjective synonym of *Jugurtia* Saussure 1854 by van der Vecht and Carpenter (1990), a view which was confirmed by Carpenter (1993) in his cladogram of masarine genera. In the former publication reference was made to a paper in preparation by Carpenter on the phylogenetic system of the Masarinae in which would be given the rationale for this and other synonymies, arrived at by means of cladistic analyses. Though this paper has yet to be published Carpenter has very kindly allowed access to a manuscript copy. From a study of this manuscript and from personal communications it is evident that Carpenter had identified autapomorphies for both genera. Of these

he found most useful the character states regarding the form of the antennal club and the number of spurs of the middle tibiae. He did not, however, regard the features by which *Jugurtia* and *Masarina* differ to be as significant as those which they share. Strongly influencing his decision to sink *Masarina* into synonymy was the fact that the name is identical with that of a subtribe, which he considered could result in a nomenclatural tangle. The small number of species of *Masarina* known at the time and the wish to eliminate generic fragmentation in the Vespidae were further considerations.

The present author, following his discovery and study of six additional species assignable to *Masarina* (bringing the known species up to ten), had discussions with Carpenter who, as a result, has agreed that useful grounds for maintaining two genera have been provided.

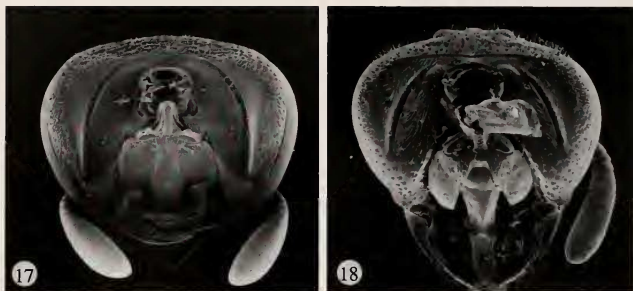
Morphological differences between *Masarina* and *Jugurtia* are as follow.

Both genera have a preoccipital carina that runs posteriorly across the vertex. In *Jugurtia* (Fig. 17), however, the carina extends down the tempora whereas in *Masarina* (Fig. 18) it is effaced, the tempora being rounded, with at most a change in the sculpturing indicating the course taken by the carina in the former genus.

Species of *Jugurtia* are characterized by a marked sexual dimorphism which is manifested in the males not only by the elongated and variously modified antennae but by the generally long narrow abdomen. *Masarina* by contrast exhibits little sexual dimorphism, the males looking very like the females and requiring close scrutiny for separation.

Species of *Jugurtia* all exhibit a transverse furrow at the base of the second gastral sternum whereas this is absent in all species of *Masarina*.

The number of spurs of the middle tibiae has proved to be of only limited value as exceptions to the general rule occur in both genera. Whereas *Jugurtia* generally



Figs. 17–18. 17. *Jugurtia braunsi*. Occipital view of head showing complete preoccipital carina ($\times 20$). 18. *Masarina tylecodoni*. Occipital view of head showing incomplete preoccipital carina ($\times 20$).

has two spurs, *J. eburnea* has only one. Conversely *Masarina* generally has only one spur but *M. ceres* and *M. peliostomi* each have two.

Masarina strucki Gess

Masarina strucki Gess, 1988: 352, female (in Gess and Gess 1988). Holotype: female, South Africa: Goegap Nature Reserve near Springbok (AMG).

Male.—(Figs. 20–22). Males from Goegap Nature Reserve near Springbok (the type locality) and from Kamieskroon, Bakleikraal, are very similar to females (Fig. 19) from these localities. Sexual dimorphism is slight. The clypeus like that of the females is entirely black, differing from that of the males of many other species of *Masarina* in which it is partially or entirely pale coloured.

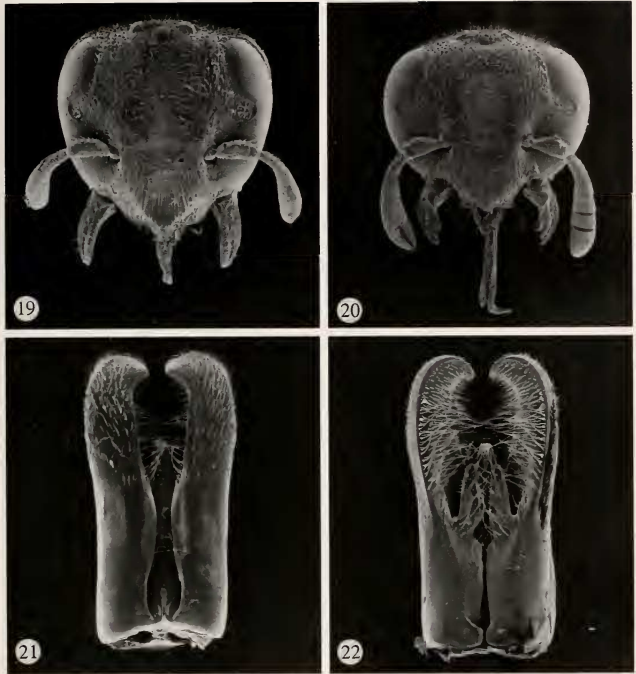
Tergum VII semi-circularly emarginate apically, angles of the emargination acute. Sterna VII + VIII transversely depressed, apically trilobed, median lobe produced ventrally.

Genitalia (Figs. 21 and 22): parameres long, apically rounded, gently curved inwards and ventrad.

Length: 6.0–7.1 mm (average of 9: 6.6 mm); wing length 4.1–4.6 mm (average of

9: 4.4 mm); tongue length 4.0 mm (average of 2). [Corresponding average lengths for females are 7.4 mm, 5.0 mm, and 4.2 mm.]

Material examined.—Cape Province, Namaqualand, Springbok, Hester Malan [now Goegap] Nature Reserve, 10–12.x.1988 (F. W. and S. K. Gess), 1 female; Namaqualand, [Springbok], Goegap [Nature Reserve], nr Kraaiwater (29.37S, 18.00E), 3–4.x.1994 (F. W. and S. K. Gess), 1 female (on sand in dry water course); same locality, at windmill site (29.37S, 17.59E), 4–8.x.1994 (F. W. and S. K. Gess), 12 females, 6 males (9 females on yellow flowers of *Hermannia disermifolia* Jacq., Sterculiaceae, 3 females, 6 males on ground beneath *H. disermifolia*); Namaqualand, Kamieskroon, Bakleikraal (30.13S, 18.03E), 9–11.x.1994 (F. W. and S. K. Gess), 16 females, 2 males (3 females on yellow flowers of *H. disermifolia* Jacq.; 12 females, 1 male on ground beneath *H. disermifolia*; 1 female, 1 male without further details); same locality, 28.ix.1995 (F. W., S. K. and R. W. Gess), 4 females, 4 males (4 females, 1 male on yellow flowers of *H. disermifolia*; 1 male on ground; 2 males without further details); Nieuwoudtville, Skuinshoogte Pass (31.16S, 19.08E), 23–30.ix.1994 (F. W. and S. K. Gess), 2 females (1 on dry river bed;

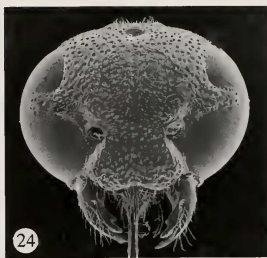


Figs. 19–22. *Masarina strucki*. 19, Frontal view of head of female ($\times 20$). 20, Frontal view of head of male ($\times 20$). 21, Dorsal view of genitalia of male ($\times 50$). 22, Ventral view of genitalia of male ($\times 50$).

1 on ground beneath *Hermannia* sp.); Clanwilliam Dam, E bank, 19.2 km S caravan park (32.17S, 18.56/7E), 5.x.1995 (F. W., S. K. and R. W. Gess), 3 females (in orange flowers of *Hermannia* (*Mahernia*) sp.) [all above records AMG]; Clanwilliam distr., Biedouw Valley (32.08S, 19.14E), 7.ix.1988 (C. D. Eardley), 1 female [NCP]; Ladismith, Buffelspoort (3320BD), 14.viii.1995 (V. B. Whitehead), 3 females (on *Herman-*

nia sp.) [SAM]; 6 km from Ladismith on road to Barrydale, 21.viii.1995 (F. W. and S. K. Gess), 3 females (visiting yellow flowers of *H. vestita* Thunb.) [AMG].

Discussion.—Since the description of this species from a single female from the Hester Malan [now Goegap] Nature Reserve near Springbok, many more specimens, including males, have been collected. They exhibit considerable geographic vari-



Figs. 23–24. *Masarina ceres*. 23, Lateral view of male ($\times 10$). 24, Frontal view of head of male (antennae missing) ($\times 25$).

ation. Specimens from Namaqualand (Springbok and Kamieskroon) have fairly extensive yellowish-white markings. Those from the Clanwilliam district and from Ladismith, all females, are melanistic and lack the pale markings on the dorsal hind margin of the pronotum, the prepectus, the scutellum and the transverse posterior band on tergum V (also tergum IV in the specimen from Biedouw Valley). The specimens from Ladismith have the legs almost black instead of orange. In addition the non-Namaqualand specimens show some variation in the degree of concavity of the frons and clypeus, in the shape of the tegulae, and are somewhat more coarsely punctured. Those from the Clanwilliam district are also smaller (6.7–6.8 mm long).

***Masarina ceres* Gess, sp. nov.**

Masarina sp. A. (Gess, S. K. 1996: Appendices 1 and 2)

Male.—(Figs. 23 and 24). Black. The following are yellow: disc of clypeus; labrum; mandible (except teeth); variously developed transverse supraclypeal marking on face and spot confluent with it above antennal sockets (these markings sometimes much reduced or absent); spot more or less filling ocular sinuses; streak

at top of tempora behind eyes; underside of scape; elongate transverse streaks on humeral angles and on pronotal dorsum medially; dorso-lateral posterior angles of pronotum adjacent to tegulae; large spot on prepectus; tegula (except for transparent central region); variously developed oval longitudinal spot on disc of scutellum; occasionally small transverse median streak on metanotum; small triangular median spots and larger, anteriorly convex lateral markings on distal half of terga I–VI (three markings on each tergum sometimes narrowly connected); sometimes a median longitudinal streak on tergum VII; sometimes a pair of small median spots and/or small lateral spots on anterior sterna; usually underside of middle and hind coxae, sometimes underside of front coxae distally; underside of front trochanters; distal portion of femora; and tibiae to variable extent. The following are reddish-brown: underside of distal flagellomeres; parts of tibiae; tarsi; occasionally diffuse area anterior to lateral yellow markings on terga I and II; sometimes sterna to variable degree. Wings subhyaline.

Length 5.7–6.3 mm (average of 5: 6.0 mm); length of front wing 3.3–3.8 mm (average of 6: 3.5 mm).

Head (Fig. 24). Mandible laterally widely and shallowly indented at base, apically with three strong pointed teeth of which subapical is only slightly smaller than apical. Clypeus steeply raised from sides; disc markedly broad and short, its width $1.69\text{--}1.81 \times$ its length (average of 6: 1.74) (measured between lateral angles and from base to bottom of ventral emargination), flattened, slightly longitudinally depressed medially; ventral margin broadly bilobed and angularly emarginate, edentate, broadly lamellate; surface moderately coarsely but very shallowly punctured, shiny. Frons and vertex moderately coarsely and closely punctured, with interspaces finely punctured in parts and generally shiny. Preoccipital carina developed dorsally only, narrow.

Thorax (particularly pronotal dorsum, mesoscutum, and scutellum) coarsely, closely and deeply punctured, with interspaces very narrow and reticulate, and surface generally much less shiny than head. Scutellum raised above mesoscutum, falling almost perpendicularly into a wide, crenate anterior furrow, with lateral wings normal. Propodeal angles subtuberculate above. Middle tibia with two spurs; shorter hind tibial spur simple (not bifid); claws of all legs minutely toothed. Tegula short pyriform, only $1.5 \times$ as long as broad.

Gastral terga I–VI with coarse shallow punctures (largest on tergum I, progressively smaller on II–VI), with entire surface (that is bottom of punctures and interspaces) microsculptured; tergum VII rounded at apex, closely and deeply punctured with interspaces reticulate. Sterna VII + VIII apically with large rounded lobe on each side but lacking a median lobe.

Material examined.—Holotype: male. Cape Province: 17 km N of Ceres, near top of Gydo Pass, 30.xi.1989 (F. W. and S. K. Gess) (on flowers of *Aspalathus* sp., Fabaceae) [AMG]. Paratypes: (5 males); same data as holotype [AMG].

Discussion.—The male of *ceres* is immediately recognizable by the coarse, close and deep puncturation of the thorax and by the distribution and form of the yellow markings on the otherwise black body. Closest in gross general appearance to the somewhat larger male of *strucki*, which like it has a yellow spot on the scutellum, it may readily be distinguished from it by the possession of yellow markings on the head and antennal scapes.

Etymology.—The name *ceres*, a noun in apposition to the generic name, is derived from the town Ceres which in its turn was named after the Roman goddess of agriculture. It indicates the provenance of the present specimens.

Masarina mixtoides Gess, sp. nov.

Female.—(Fig. 32). Black. The following are yellowish-white: narrow streak at top of tempora behind eyes; transverse posterior bands on terga II–IV (on tergum II very narrow or interrupted medially but conspicuously expanded laterally, on III complete and moderately expanded laterally, on IV reduced laterally but slightly expanded medially). The following are various shades of reddish-brown: underside of flagellomeres V–VII; tegula (other than inner margin); axilla; terga I and II (except black extreme lateral margins and pale areas indicated above) and sometimes a small, diffuse area medially on tergum III anterior to pale band; knees of all legs; diffuse streak on front tibia; apex of front tarsomere I and whole of II–V. Wings lightly browned.

Length 6.8–8.2 mm (average of 9: 7.6 mm); length of front wing 5.1–5.7 (average of 9: 5.3 mm), hamuli 8–10. Length of tongue 3.5 and 3.6 mm (based on two specimens), average tongue length: average body length = 0.67.

Clypeus raised from sides; disc $1.6 \times$ broader than long (measured between lateral angles and from base to bottom of ventral emargination), flattened but not depressed medially; ventral and lateral

margins lamellate; ventro-lateral corners rounded; ventral margin widely and shallowly emarginate, edentate; integument moderately coarsely and closely punctured, with punctures tending to run longitudinally. Frons evenly transversely curved, not depressed medially, similarly punctured to clypeus; vertex punctured like adjacent parts of frons; preoccipital carina developed only dorsally, lamellate, in length only $0.6 \times$ interocular distance (measured across ocelli).

Dorsal surface of pronotum, mesonotum and scutellum with shallow, widely spaced punctures, interspaces micropunctured but shiny; scutellum evenly convex, fairly steeply raised above mesoscutum, separated from it by narrow, deep, shiny transverse depression, posteriorly widely rounded and only minimally indented. Tegula (Fig. 32) longer than broad, posteriorly narrowed, incurved and upturned. Middle tibia with one spur; shorter hind tibial spur simple (not bifid); claws of all legs minutely toothed.

Gastral terga with widely spaced, shallow punctures, interspaces micropunctured but shiny.

Male.—Coloration similar to that of female but differing in the presence of yellowish-white transverse streaks on the pronotum (mediodorsally and on humeral angles) and of a minute spot on the prepectus, and in the absence of any markings of this colour on the metasoma.

Length 6.3 mm; length of front wing 4.9 mm; hamuli 8.

Structurally similar to the female.

Material examined.—Holotype: female. Cape Province: Namaqualand, Richtersveld National Park, Koeroegabvlakte (28.11S, 17.03E), 17–21 and 24.ix.1995, (F. W., S. K. and R. W. Gess), (on small cream flowers of *Zygophyllum prismatocarpum* E. Mey. ex Sond., Zygophyllaceae) [AMG]. Paratypes (26 females, 1 male): Cape Province: Namaqualand, Richtersveld National Park, Koeroegabvlakte (28.11S, 17.03E), 17–21 and 24.ix.1995, (F. W., S. K. and R.

W. Gess), 8 females (2 on small cream flowers of *Zygophyllum prismatocarpum*; 4 on yellow flowers of *Zygophyllum* sp.); 1 on yellow flowers of Asteraceae; 1 in purplish-violet flowers of *Wahlenbergia* sp., Campanulaceae); Richtersveld National Park, between hills, at 28.08S, 17.01E and at 28.10S, 17.02E, NW Koeroegabvlakte, 14.ix.1996 (F. W., S. K. and R. W. Gess) 3 females (one from first locality, two from second locality, all on yellow flowers of *Zygophyllum meyeri* Sond.); Namaqualand, Richtersveld National Park, 1.5 km from Helskloof Gate (28.18S, 16.57E), 8 and 9.ix.1996 (F. W., S. K. and R. W. Gess) 15 females, 1 male (all females on white flowers of *Pelargonium klinghardtense* Knuth, Geraniaceae; male on ground) [all AMG].

Discussion.—Females of *mixtoides* differ from those of *mixta* in possessing yellowish-white transverse posterior bands on the abdominal terga and males differ in lacking any yellow markings on the clypeus and supraclypeus; both sexes, when viewed with the naked eye from above, differ in the blacker and more shiny appearance of the thorax. Under magnification this difference is seen to be due to *mixtoides* having smaller, shallower and less close punctures separated by smoother far less densely micropunctured interspaces. The scutellum is shorter, posteriorly much more widely rounded and only minutely indented. The tegula is of different shape and much longer (compare Figs. 31 and 32).

Etymology.—The name *mixtoides* serves to draw attention to the general similarity of this species to *M. mixta* Richards.

Masarina namaqua Gess, sp. nov.

Female.—Black. The following are yellowish-white: small frontal spot near eyes above ocular sinus; narrow streak at top of tempora behind eyes, and occasionally lateral streaks on clypeus. The following are various shades of reddish-brown: labrum, lamellate ventral margin of clypeus; mandible, underside of flagellomeres V–

IX or X, tegula except for inner margin; occasionally propodeal angles; terga I-IV mostly and tergum V laterally; sterna to various degrees (only I and II or I-III and hind margins of IV, V and even VI); apices of femora, and all tibiae and tarsi. Wings subhyaline.

Length 6.8–7.9 mm (average of 9: 7.4 mm); length of front wing 4.8–5.2 mm (average of 12: 5.1 mm); hamuli 7–9.

Clypeus steeply raised from sides; disc 1.3–1.4 \times broader than long (measured between lateral angles and from base to bottom of ventral emargination), flattened, only minimally depressed medially; ventral and lateral margins markedly lamellate; ventro-lateral corners smoothly rounded, obtuse; ventral margin shallowly and widely emarginate, edentate; integument moderately coarsely and closely punctured (except medially over proximal three quarters where punctures are few and interspaces are wide, smooth and shiny), with punctures tending to run longitudinally. Frons slightly depressed medially, with faintly impressed median line; frons and vertex moderately coarsely and closely punctured throughout (except sometimes medially on frons); preoccipital carina developed only dorsally, narrowly lamellate. Mandible over basal two-thirds with lamellate upper margin, smoothly widened and strongly outwardly bent. Antenna simple; flagellomeres somewhat depressed (therefore oval rather than round in cross section), gradually thickened, not forming distinct club; eighth flagellomere only slightly wider than scape, less than twice width of first two flagellomeres.

Thorax shiny under low magnification; mesoscutum and scutellum with punctures coarse but shallow and diffuse, with interspaces only moderately closely and not very noticeably micropunctured. Scutellum with disc bun-shaped, smoothly convex, anteriorly falling smoothly but steeply to meet mesoscutum (furrow between them smooth, narrow and deep),

posteriorly falling smoothly but steeply, slightly overhanging metanotum; lateral wings of scutellum produced, overhanging and therefore covering metanotum laterally; hind and lateral margins of scutellum forming an almost parabolic curve except that in the middle (that is posteriorly) it is slightly flattened or, in some specimens, even very weakly indented. Angles of propodeum slightly tuberculate above.

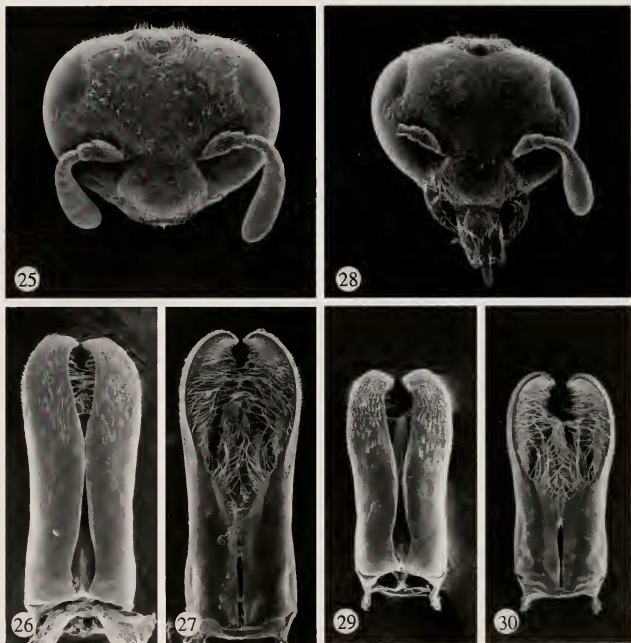
Front tarsomeres II–IV produced into inwardly directed lobes, that of II short, those of III and IV much longer, flattened, narrow and subparallel-sided, that of IV reaching beyond middle of V; middle tibia with one spur; shorter hind tibial spur simple (not bifid); claws of all legs minutely toothed. Tegula 1.4 \times as long as wide, outer margin of its posterior half describing a mostly flat arc to the inner posterior angle (that is tegula markedly narrowed posteriorly).

Gastral terga with moderately sized shallow punctures, moderately spaced anteriorly, closer posteriorly.

Male.—(Figs. 25–27 and 33). Black. The following are yellowish-white: disc of clypeus; large sub-quadrate supraclypeal marking on face; entire labrum; mandible; entire underside of scape; variously sized spot in ocular sinus; narrow streak at top of tempora behind eyes; elongate transverse streak on humeral angles; occasionally spot or elongate transverse streak medially on pronotal dorsum; streaks on dorsal aspects of tibiae and front tarsomeres. The following are various shades of reddish-brown: underside of flagellomeres IV–X; tegula (except broad inner margin); terga I–III or I–IV generally, and tergum V and anterior sterna partially and to various degrees; apices of femora, and all tibiae (partially) and tarsi (partially). Wings subhyaline.

Length 5.8–6.3 mm (average of 8: 6.0 mm); length of front wing 4.1–4.5 mm (average of 8: 4.3 mm); hamuli 6–8.

Head (Fig. 25). Clypeus steeply raised from sides; disc 1.2–1.3 \times broader than



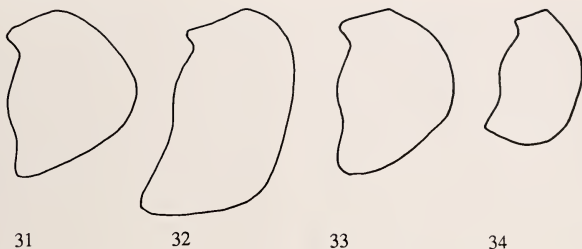
Figs. 25–30. *Masarina namaqua*. 25, Frontal view of head of male ($\times 25$). 26, Dorsal view of genitalia of male ($\times 50$). 27, Ventral view of genitalia of male ($\times 50$). 28–30. *Masarina parvula*. 28, Frontal view of head of male ($\times 25$). 29, Dorsal view of genitalia of male ($\times 50$). 30, Ventral view of genitalia of male ($\times 50$).

long (measured between lateral angles and from base to bottom of ventral emargination), smoothly convex (not depressed); ventral margin weakly bilobed and shallowly and widely emarginate, edentate, broadly lamellate.

Tergum VII rounded to subtruncate at apex. Proximal sterna unmodified; sterna VII + VIII trilobed apically with lateral lobes large and median lobe small.

Genitalia (Figs. 26 and 27).

Material examined.—Holotype: female. Cape Province: Namaqualand, Springbok, Hester Malan [now Goegap] Nature Reserve], 15–21.x.1987 (F. W. and S. K. Gess) [AMG]. Paratypes (11 females, 8 males): Cape Province: Namaqualand, Springbok, Hester Malan [now Goegap] Nature Reserve], 15–21.x.1987 (F. W. and S. K. Gess), 1 male (Malaise trap) [AMG]; Namaqualand, Klipfontein (29.51S, 12.47E), 14.x.1989 (F. W. and S. K. Gess),



Figs. 31–34. Right tegula. 31, *Masarina mixta* ($\times 60$). 32, *Masarina mixtoides* ($\times 60$). 33, *Masarina namaqua* ($\times 60$). 34, *Masarina parvula* ($\times 60$).

1 female (visiting flowers of *Wahlenbergia* cf. *prostrata*) [AMG]; same locality and date (D. W. Gess), 2 females [AMG]; Namaqualand, Kamieskroon, Sors Sors, 11.x.1994 (F. W. and S. K. Gess), 1 female (on/in light violet flowers of *Wahlenbergia oxyphylla* A.DC. Campanulaceae) [AMG]; Namaqualand, Farm Arkoep, 6 km N Kamieskroon (30.19S, 17.56E), 1–2.x.1990 (C. D. Eardley), 7 females and 7 males [NCP].

Discussion.—In both sexes the species is somewhat reminiscent of *C. mixta* Richards but may immediately be distinguished by the different shape of the tegula (compare Figs. 31 and 33) and by differences in the puncturation of the thorax.

Etymology.—The name *namaqua*, a noun in apposition to the generic name, is derived from the Namaqua people of Namaqualand and refers to the provenance of the specimens.

***Masarina parvula* Gess, sp. nov.**

Female.—Black. The following are yellowish-white: minute frontal spot near eyes above ocular sinus and a narrow streak at top of tempora behind eyes; streaks on dorsal aspects of front tibia, basal half of middle tibia and basal quarter of hind tibia. The following are various shades of reddish-brown: underside of fla-

gellomeres IV–IX, mandible (if not dark brown); outer margin of tegula; terga I–IV generally and tergum V laterally; sterna to various degrees (mainly hind margins). Legs other than parts mentioned and most of sterna dark brown. Wings subhyaline.

Length 5.8 mm; length of front wing 4.0 mm; hamuli 7.

Clypeus moderately raised from sides; disc 1.6–1.7 \times broader than long (measured between lateral angles and from base to bottom of ventral emargination), flattened, only minimally depressed medially; ventral and lateral margins weakly lamellate; ventro-lateral corners narrowly rounded, almost right-angular; ventral margin widely and shallowly emarginate, edentate; integument moderately coarsely and closely punctured (except medially over proximal three quarters where punctures are few and interspaces are wide, smooth, shiny), punctures tending to run longitudinally. Frons somewhat depressed medially, with distinct, finely impressed median line; moderately coarsely and closely punctured laterally, more finely so medially and ventrally, impunctate and shiny on either side of median impressed line; vertex punctured like adjacent parts of frons; preoccipital carina developed only dorsally, narrowly lamellate. Mandi-

ble over basal two-thirds with upper margin lamellate, smoothly widened and strongly outwardly bent. Antenna progressively thickened, especially from flagellomere IV onwards; flagellomere VIII markedly wider than scape and slightly more than twice width of flagellomeres I and II.

Thorax almost matt under low magnification; mesoscutum and scutellum with punctures only moderately coarse but well defined, interspaces very closely and noticeably micropunctured. Scutellum with disc bun-shaped, smoothly convex, anteriorly falling smoothly but steeply to meet mesoscutum (furrow between them smooth, narrow and deep), posteriorly falling smoothly but steeply and slightly overhanging metanotum; lateral wings of scutellum produced, overhanging and therefore covering metanotum laterally; hind and lateral margins of scutellum forming an almost parabolic curve except that in the middle (that is posteriorly) it is slightly flattened or, in some specimens, is even very weakly indented. Angles of propodeum slightly tuberculate above.

Front tarsus with tarsomeres II–IV produced into inwardly directed lobes, that of II very short, those of III and IV short, somewhat flattened, bow-sided, that of IV not attaining middle of V; middle tibia with one spur; shorter hind tibial spur simple (not bifid); all claws distinctly dentate.

Tegula $1.5 \times$ as long as wide, outer margin of its posterior half describing a quarter circle to inner posterior angle (that is, tegula evenly rounded and not at all narrowed posteriorly).

Gastral terga with moderately sized and spaced punctures.

Male.—(Figs. 28–30 and 34). Black. The following are yellowish-white: disc of clypeus; occasionally narrow transverse marking above fronto-clypeal suture; sometimes labrum (if not testaceous); mandible (except apex); small spot on underside of scape; small spot in ocular si-

nus; narrow streak at top of tempora behind eyes; streaks on dorsal aspects of front and middle tibiae and front tarso-meres; basal third to half of hind tibia. The following are various shades of reddish-brown: underside of flagellomeres VI–IX (or fewer); tegula (except for broad inner margin); terga I–IV generally, V or V and VI occasionally; anterior sterna partially and to various degrees. Legs other than parts mentioned and most of sterna dark brown. Wings subhyaline.

Length 4.8–5.5 mm (average of 9: 5.3 mm); length of front wing 3.5–3.8 mm (average of 7: 3.7 mm); hamuli 5–7.

Head (Fig. 28). Clypeus steeply raised from sides; disc $1.4\text{--}1.5 \times$ broader than long (measured between lateral angles and from base to bottom of ventral emargination), smoothly convex (not depressed); ventral margin weakly bilobed and widely emarginate, edentate, broadly lamellate. Tergum VII rounded to subtruncate. Proximal sterna unmodified; sterna VII + VIII trilobed apically, lateral lobes large and median lobe small.

Genitalia (Figs. 29 and 30).

Material examined.—Holotype: female. Cape Province: Namaqualand, Springbok, Hester Malan [now Goegap] Nature Res[erve], 15–21.x.1987 (F. W. and S. K. Gess) (Malaise trap) [AMG]. Paratypes (2 females, 9 males): Cape Province: Namaqualand, Springbok, Hester Malan [now Goegap] Nature Res[erve], 15–21.x.1987 (F. W. and S. K. Gess) 3 males (2 Malaise trap; 1 on ground); same locality, 10–12.x.1988 (F. W. and S. K. Gess), 2 males (in flowers of *Wahlenbergia* sp.); same locality, 10–11.x.1989 (F. W. and S. K. Gess), 1 male; same locality and date (D. W. Gess), 3 males; Namaqualand, Kamieskroon, Sors Sors, 11.x.1994 (F. W. and S. K. Gess), 1 female (on/in light violet flowers of *Wahlenbergia oxyphylla* A. DC. (Campanulaceae); Namaqualand, Sors Sors/Taiboskraal (30.08/9S, 18.01E), 3.x.1995 (F. W., S. K. and R. W. Gess), 1 female (in violet flowers of *Wahlenbergia* sp.) [all AMG].

Discussion.—Similar, though somewhat smaller, to *namaqua*, sharing with it and *mixta* a black thorax (including the scutellum) and an abdomen with at least the anterior segments reddish-brown but lacking yellow markings. It differs from both in the shape of the tegula (compare Figs. 31, 33 and 34), and from *namaqua* in the proportions of the clypeus, in the puncturation of the thorax, in the presence of yellow streaks on the tibiae and, in the male, in the less extensive yellow markings on the head and scape.

Etymology.—The name *parvula*, a Latin female adjective meaning rather small refers to the size of the species.

Masarina peliostomi Gess, sp. nov.

Female.—(Figs. 35 and 36). Black. The following are pale yellowish-white: very small crescent-shaped mark occupying very bottom of ocular sinus, variably sized streak at top of tempora behind eyes, narrow streak on humeral angles, very occasionally small spot on upper part of prepectus, postero-dorsal angles of pronotum, sometimes posterior third or less of tegula, lateral margins of scutellum, propodeal angles, narrow but laterally slightly widened transverse posterior bands on terga I–V (that on tergum I sometimes interrupted medially and that on V frequently fragmented into a number of small spots), occasionally a small spot apically on front tibia. The following are various shades of reddish-brown: underside of flagellomeres VI–IX, mandible medially, tibiae and tarsi of all legs (except sometimes yellow spots proximally on tibiae), translucent spot on tegula. Wings light brown.

Length 6.3–6.8 mm (average of 5: 6.6 mm); length of front wing 4.1–4.2 mm; hamuli 8–12. Length of tongue 4.9–5.0 mm (based on 5 specimens); average tongue length: average body length = 0.75.

Head (Fig. 35) 1.25 × wider than long. Clypeus steeply raised from sides; disc 1.7 × wider than long, evenly convex; ventral

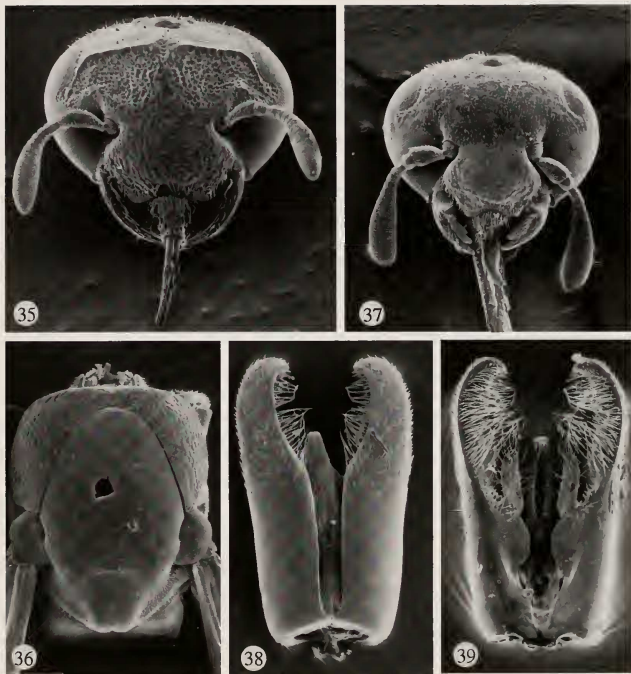
margin widely and smoothly emarginate, edentate, lamellate; surface coarsely reticulate punctate. Frons on each side with pronounced smooth subtransverse carina; the two carinae laterally downcurved before reaching middle of upper part of eyes and ending near upper margin of ocular sinuses, together for most of their length forming an extremely flat V but each on approaching midline strongly downcurved to converge with the other and to meet in a very narrow V; surface sculpturing below carinae like that of clypeus, above carinae composed of larger and sparser punctures separated by shiny interspaces; vertex and tempora more closely and finely sculptured; preoccipital carina short, hardly exceeding distance between outer margins of posterior ocelli, very narrow and not at all lamellately produced.

Thorax (Fig. 36). Pronotum with dorsum similarly punctured to upper part of frons, shiny, contrasting with finely and closely punctured, dull lateral aspects. Mesoscutum impunctate and very shiny (except for a few sparse moderately sized punctures on anterior and lateral borders and a microsculptured area postero-medially), with a fine but clear median impression in anterior half and very clear, fine parapsidal furrows in posterior half. Scutellum microsculptured, slightly raised above mesoscutum, gently convex, posteriorly rounded, minimally depressed postero-medially. Propodeum microsculptured, with angles well developed but rounded. Middle tibia with two spurs; shorter spur of hind tibia simple (not bifid); claws of all legs minutely toothed.

Gastral terga microsculptured and with some sparse small punctures; tergum VI smoothly, transversely depressed in apical half.

Male.—(Figs. 37–39). Coloration very similar to that of female with none of the males examined having any additional pale markings on the head.

Length 5.6–6.9 mm (average of 5: 6.2



Figs. 35–39. *Masarina peliostomi*. 35, Frontal view of head of female ($\times 25$). 36, Dorsal view of mesosoma of female ($\times 20$). 37, Frontal view of head of male ($\times 25$). 38, Dorsal view of genitalia of male ($\times 60$). 39, Ventral view of genitalia of male ($\times 60$).

mm); length of front wing 3.7–3.9 mm (average of 5: 3.8 mm); hamuli 8–9. Length of tongue 4.3–4.6 mm (average of 5: 4.4 mm); average tongue length: average body length = 0.71.

Structurally similar to female but differing in the following respects. Frons (Fig. 37) without carinae; sculpturing undiffer-

entiated, consisting throughout of small close punctures with shiny interspaces. Mesoscutum though shiny, sparsely punctate, punctures small to moderately sized. Tergum VII with hind margin more broadly rounded than tergum VI of female.

Genitalia (Figs. 38 and 39).

Material examined.—Holotype: female. Cape Province: Namaqualand, Richtersveld National Park, Koeroegabvlakte (28.11S, 17.03E), 17–21 and 24.ix.1995, (F. W., S. K. and R. W. Gess) (in deep violet flowers of *Peliostomum* sp., Scrophulariaceae) [AMG]. Paratypes (49 females, 7 males): Cape Province: Namaqualand, Richtersveld National Park, Koeroegabvlakte (28.11S, 17.03E), 17–21 and 24.ix.1995, (F. W., S. K. and R. W. Gess), 48 females, 5 males (all in deep violet flowers of *Peliostomum* sp.); same locality, 6.ix.1996 (F. W., S. K. and R. W. Gess), 2 males (1 in deep purple flowers of *Peliostomum* sp.; 1 on ground nr same) [AMG].

Discussion.—*M. peliostomi* differs from all other species of the genus in the possession of frontal carinae in the female and in the largely impunctate and very shiny mesoscutum in both sexes.

Etymology.—The name *peliostomi*, genitive singular, is formed from the generic name of the plant, *Peliostomum* sp. (Scrophulariaceae), in the flowers of which the wasp was found foraging for nectar or nectar and pollen.

Masarina tylecodoni Gess, sp. nov.

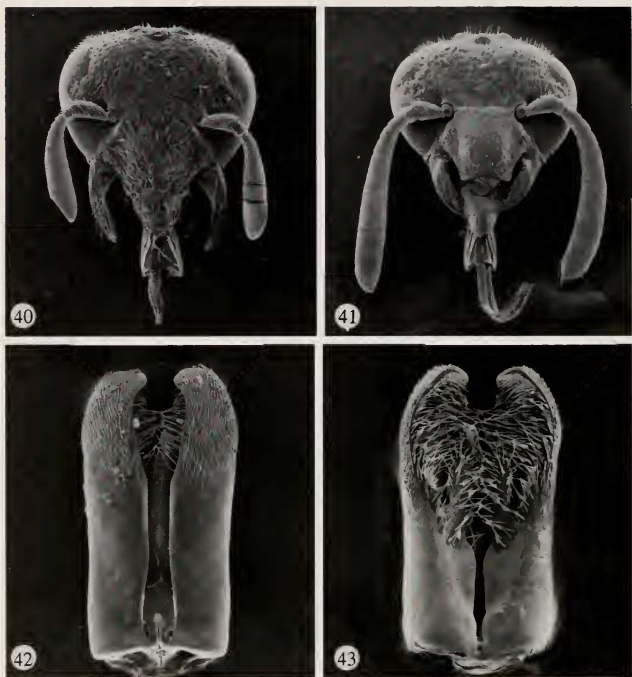
Female.—(Fig. 40). Black. The following are yellowish-white: usually small to minute spot on either side of frons, narrow streak at top of tempora behind eyes, very occasionally narrow interrupted transverse band medially on pronotal dorsum, usually small streak on humeral angles, small spots (sometimes extinguished) postero-laterally on tergite I, narrow entire or medially interrupted transverse posterior bands on terga II–IV (those on terga II and III laterally expanded), occasionally narrow transverse posterior band medially on tergum V. The following are reddish-brown: terga I and II to a variable extent, tegula to variable extent, knees of all legs, and front tibia and front tarsus to variable extent. Wings light brown.

Length 7.7–8.8 mm (average of 6: 8.3 mm); length of front wing 5.5–5.8 mm (av-

erage of 6: 5.7 mm); hamuli 10. Length of tongue 6.6–6.8 mm (average of 6: 6.7 mm); average tongue length: average body length = 0.80.

Head (Fig. 40) elongate, $1.1 \times$ wider than long, in profile with frons and clypeus forming two distinct arcs—that of frons low and that of clypeus higher and nose-like. Antenna and mandible elongate. Clypeus gradually and evenly raised from sides, evenly but strongly convex transversely, elongate, $1.38 \times$ wider than long; ventral margin widely emarginate, edentate, lamellate and somewhat upturned (especially at narrowly rounded sub-rectangular lateral angles); integument with large, shallow punctures separated by wide, smooth, shiny interspaces, and bearing fairly long, coarse, curved setae. Frons almost flat, barely convex transversely, with sculpture and setation similar to that of clypeus; vertex markedly flattened; preoccipital carina very pronounced, lamellate, extending over a distance = $0.9 \times$ interocular distance (measured across ocelli), minimally curved over most of its length but abruptly inturned at its ends (viewed from above, the tempora appear to bulge out on either side of the carina).

Dorsal surface of pronotum, mesoscutum and scutellum with large shallow punctures (those on anterior half of mesoscutum particularly large and widely spaced), interspaces smooth and shiny, except on posterior third of mesoscutum and on scutellum where closely and finely micropunctured. Setation on pronotum and on adjacent parts of mesoscutum like that on head. Median line on anterior two-thirds of mesoscutum and parapsidal furrows fine but distinct. Scutellum evenly convex, fairly steeply but smoothly raised above mesoscutum and separated from it by a narrow, deep, shiny transverse depression, posteriorly weakly emarginate. Propodeum with angles strongly produced. Middle tibia with single bifid spur;



Figs. 40–43. *Masarina tylecodoni*. 40, Frontal view of head of female ($\times 20$). 41, Frontal view of head of male ($\times 20$). 42, Dorsal view of genitalia of male ($\times 50$). 43, Ventral view of genitalia of male ($\times 50$).

shorter spur of hind tibia bifid; all claws distinctly toothed.

Gastral terga with moderately sized shallow punctures and micropunctured interspaces; tergum VI slightly transversely depressed in apical half.

Male.—(Figs. 41–43). Similarly coloured to the female. Black. The following are yellowish-white: mandible to variable extent,

markings on clypeus (varying from almost entire disc or large central spot and smaller spot on each antero-lateral lobe, through reduction of these spots to their total extinction), narrow streak at top of tempora behind eyes; transverse band (sometimes interrupted or extinguished) medially on pronotal dorsum, humeral angles, narrow transverse streaks postero-

laterally on terga II–V (occasionally II–IV or II–VI). The following are reddish-brown: terga I and II to variable extent, tegula to variable extent, all knees, and front tibia and front tarsus to variable extent. Wings light brown.

Length 6.1–8.8 mm (average of 5: 7.6 mm); length of front wing 4.3–5.9 mm (average of 5: 5.3 mm); hamuli 10. Length of tongue 5.0–7.5 mm (average of 5: 6.4 mm); average tongue length: average body length = 0.84.

Structurally similar to female but differing in the following respects. Antenna even more elongate, equalling length of head (Fig. 41) (measured from vertex to middle of ventral emargination of clypeus). Median impression on frons below anterior ocellus much deeper (barely indicated in female). Tergum VII with hind margin more broadly rounded than tergum VI of female, not transversely depressed. Preoccipital carina not abruptly inturned laterally (viewed from above, the

tempora do not appear to bulge out on either side of the carina).

Genitalia (Figs. 42 and 43).

Material examined.—Holotype: female. Cape Province: Namaqualand, Richtersveld National Park, Koeroegabvlakte (28.11S, 17.03E), 17–21 and 24.ix.1995, (F. W., S. K. and R. W. Gess) (in yellow flowers of *Tylecodon hallii* (Tölken) Tölken, Crassulaceae) [AMG]. Paratypes (22 females, 18 males): same data as holotype [AMG].

Discussion.—A very distinct species characterized by the elongate head and antennae, the nose-like clypeus, and the strongly produced propodeal angles.

Etymology.—The name *tylecodoni*, genitive singular, is formed from the generic name of the plant, *Tylecodon hallii* (Tölken) Tölken, (Crassulaceae), in the flowers of which the wasp was found foraging for nectar or nectar and pollen. *T. hallii* is endemic to the northern Richtersveld and the adjacent part of southern Namibia.

KEY TO SPECIES OF MASARINA RICHARDS

Note that the female of *ceres* is as yet unknown and has been included in the key using presumed characters for which reason it is given in [].

FEMALES

- X1. Head, mandibles and antennae elongated; clypeus markedly convex transversely, raised, bulbous and nose-like *tylecodoni* Gess sp. nov.
- Head, mandibles and antennae not as above; clypeus either longitudinally depressed or, if convex, not raised, bulbous and nose-like 2
- 2. Metasoma black with white or yellow markings 3
- Metasoma partially or wholly red, with or without white or yellow markings 5
- 3. Frons with subtransverse, medially downcurved and converging carinae; clypeus convex; mesoscutum in greater part impunctate and very shiny; middle tibia with two spurs *pelestomi* Gess sp. nov.
- Frons lacking carinae; clypeus longitudinally depressed; mesoscutum closely punctured; middle tibia with one or two spurs 4
- 4. Clypeus and adjacent part of frons markedly longitudinally aciculate; middle tibia with one spur *strucki* Gess
- [Clypeus and adjacent part of frons moderately coarsely punctured; middle tibia with two spurs *ceres* Gess sp. nov.
- 5. Large (8.5–11.5 mm) species with longitudinally depressed clypeus and with red, pyriform tegulae 6
- Small to medium (5.8–8.2 mm) species with convex clypeus and variously shaped red or black tegulae (if clypeus is weakly longitudinally depressed then tegula is black, broad and triangular) 7

6. Frons on each side above ocular sinus with a large yellow spot; metasoma with yellow markings in addition to reddish ones; puncturation of head, thorax and metasoma coarse; propodeal angles tuberculate; scutellum with a narrow smooth anterior furrow *familiaris* Richards
- Frons on each side above ocular sinus with a small to minute reddish spot; metasoma with reddish markings only; puncturation of head, thorax and metasoma moderate; propodeal angles almost rounded. Scutellum with a wide coarsely crenulate anterior furrow *hyalinipennis* Richards
7. Terga I and II predominantly red, contrasting with predominantly black terga III–VI; frons immaculate 8
- Terga I–V predominantly red; frons on each side above ocular sinus with a small yellowish-white spot 9
8. Terga II–IV without any yellowish-white markings; tegula short and broad, as in Fig. 31 *mixta* Richards
- Terga II–IV with variously developed yellowish-white transverse posterior bands; tegula elongate, as in Fig. 32 *mixtoides* Gess sp. nov.
9. Tibia and tarsus of all legs light reddish brown; tegula markedly narrowed posteriorly, as in Fig. 33; clypeal disc $1.3\text{--}1.4 \times$ broader than long *namaqua* Gess sp. nov.
- Tibia and tarsus of all legs dark brown with variously developed yellowish white dorsal streaks; tegula evenly rounded posteriorly, as in Fig. 34; clypeal disc $1.6\text{--}1.7 \times$ broader than long *parvula* Gess sp. nov.

MALES

1. Head, mandibles and antennae elongated; clypeus markedly convex transversely, raised, bulbous and nose-like *tylccodoni* Gess sp. nov.
- Head, mandibles and antennae not as above; clypeus either longitudinally depressed or, if convex, not raised, bulbous and nose-like 2
2. Metasoma black with white or yellow markings 3
- Metasoma partially or wholly red, with (*familiaris* only) or without white or yellow markings 5
3. Clypeus and adjacent part of frons convex; mesoscutum shiny, sparsely punctate; tegula black; middle tibia with two spurs *pelioستي* Gess sp. nov.
- Clypeus and adjacent part of frons longitudinally depressed; mesoscutum closely punctate; tegula yellow or yellowish-white; middle tibia with one or two spurs 4
4. Clypeus and adjacent part of frons markedly longitudinally aciculate; scape, mandible, labrum, clypeus and face black; middle tibia with one spur *strucki* Gess
- Clypeus and adjacent part of frons moderately coarsely punctured; scape, mandible, labrum, clypeus, supraclypeal marking and ocular sinus yellow; middle tibia with two spurs *ceres* Gess sp. nov.
5. Large (8.5–11.5 mm) species with longitudinally depressed clypeus and with red, pyriform tegulae 6
- Small to medium (5.8–8.2 mm) species with convex clypeus and variously shaped red or black tegulae (if clypeus is weakly longitudinally depressed then tegula is black, broad and triangular) 7
6. Frons on each side above ocular sinus with a large yellow spot; clypeal disc and supraclypeal marking yellow; metasoma with yellow markings in addition to reddish ones; puncturation of head, thorax and metasoma coarse; propodeal angles tuberculate; scutellum with a narrow smooth anterior furrow; sternum II unmodified; tergum VII emarginate apically *familiaris* Richards
- Frons on each side above ocular sinus immaculate; clypeal disc and supraclypeal marking pure white; metasoma with reddish markings only; puncturation of head, thorax and metasoma moderate; propodeal angles almost rounded; scutellum with a wide coarsely cren-

- ulate anterior furrow; sternum II with a bituberculate prominence; tergum VII rounded apically *hyalinipennis* Richards
7. Terga I, II (and sometimes III) predominantly red, contrasting with terga III (or VI)–VII which are predominantly black; scape entirely black; mandible, labrum and clypeal disc either black or yellowish-white 8
- Terga I–IV (at least) predominantly red, not contrasting with terga V–VII but rather grading from red to reddish-brown to blackish; scape with yellow mark; mandible, labrum and clypeal disc always yellowish-white 9
8. Mandible, labrum, clypeal disc and broad supraclypeal marking yellowish-white; tegula short and broad, as in Fig. 31 *mixta* Richards
- Mandible, labrum, clypeal disc and supraclypeus black; tegula elongate, as in Fig. 32. *mixtoides* Gess sp. nov.
9. Frons with large, sub-quadrate, yellowish-white supraclypeal marking; entire hind tibia and basitarsus pale; tegula markedly narrowed posteriorly, as in Fig. 33; clypeal disc 1.2–1.3 × broader than long. *namaqua* Gess sp. nov.
- Frons with at most a narrow, transverse, yellowish-white supraclypeal marking; only proximal half of hind tibia pale; tegula evenly rounded posteriorly, as in Fig. 34; clypeal disc 1.4–1.5 × broader than long *parvula* Gess sp. nov.
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